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The Goulstonian Lectures

ON

A CONTRIBUTION TO THE LOCALISATION OF CEREBRAL FUNCTION, BASED ON THE CLINICO-PATHOLOGICAL STUDY OF MENTAL DISEASE.

Delivered before the Royal College of Physicians of London on March 1st, 3rd, and 8th, 1910,

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LECTURE I.

Delivered on March 1st.

MR. PRESIDENT AND GENTLEMEN,—In thanking you for the honour you have done me by your invitation to deliver the Goulstonian Lectures for the present year, I would at the same time apologise for my presumption in choosing as my subject such a vexed and intricate question as the localisation of cerebral function. I have but one excuse to offer—namely, that in my researches I have attacked this subject by a somewhat different method from those hitherto adopted, and have thereby obtained results which appear to me partly to confirm and partly to elaborate the conclusions arrived at by certain other and more experienced workers. As my present investigations have already occupied a considerable period of time, it being now 14 years since their commencement and 10 years since my first paper on cortical localisation was published, I think I may fairly claim that the conclusions at which I have arrived are neither hasty nor ill-considered, and I therefore trust that you will regard these, and also the evidence which I am about to lay before you, as not entirely unworthy of your attention.

HISTORICAL REMARKS.

I do not propose to enter into a historical retrospect of the investigations of the past 40 years, as for my purpose it is sufficient to refer briefly to those of the past decade. With regard to the earlier researches, I would remark that the experimental method of investigation, which was introduced by Fritsch and Hitzig and by Ferrier, and continued by numerous workers from whose names it would be invidious to make a selection, may be considered to have served its purpose with the publication of the researches of Sherrington and Grünbaum. These, by linking together the conclusions arrived at by the experimental and the histological methods, resulted in the belated recognition of the neglected histological investigation of Bevan-Lewis and Henry Clarke on the cortical localisation of the motor area, and gave an impetus to the latter method which has already been followed by a considerable amplification of our knowledge of the structure and functions of the cerebrum.

The last, but not the least important, of the researches to which I must refer before dealing with the published work of the past few years are those of Flechsig on the development of the human brain by a study of the process of myelination. The division of the cortex cerebri by this investigator into the two great classes of "sensory centres" and "centres of association" raised a storm of discussion and dissent which is almost unprecedented in the history of research, and which, but for Flechsig, would have overtaken the workers of the past decade. Though many of the results obtained by Flechsig have failed to obtain credence, largely perhaps through the frequency with which he modified them in successive publications, his broad generalisation has successfully withstood the fire of criticism, and forms the origin, if not entirely the basis, of our present knowledge of cortical localisation by histological methods. In my personal opinion, which is based on my experience of the great differences which exist in the degree of development of fœtal and infantile brains of approximately the same age, Flechsig was injudicious in applying directly to the adult cerebrum the results he obtained from the investigation of such brains; but, of course, it is easy to be wise after the event, and it is probable that the researches of Flechsig would have attracted less attention had they excited less dissent.

During the past decade numerous publications have appeared on the subject of cortical localisation by histological methods. In these several publications the whole cortex cerebri of man, and in many orders of mammals, has been mapped out into various histologically different regions, and in some instances proof of the functional significance of these has also been adduced. Further, the mode of evolution and functional significance of the different cell laminæ of the cortex cerebri have been discussed from both the ontogenetic and the phylogenetic aspects.

As I purpose in these lectures to deal solely with the human cerebrum, it is unnecessary for me to refer, except as occasion serves, to such investigations as concern the cortex of the lower mammals. Amongst the publications which bear on cortical localisation in man, those of two authors stand out prominently—namely, the "Histological Studies" of Campbell and the series of monographs published since the year 1902 by Brodmann. These authors have independently and elaborately mapped out into histologically different areas the whole human cortex cerebri, as well as the cortex cerebri of certain orders of mammals. The human maps of these authors, whilst differing considerably in detail, agree with one another much more than either of them resembles the maps of Flechsig. I have already indicated one reason why the map of Flechsig cannot be applied directly to the adult cerebrum. It will also be evident to you that, owing to the low development in the fœtus of the later evolved spheres of association, the projection areas must of necessity differ considerably in their relative size and distribution in the fœtus and the adult. Further, without going so far as Elliot Smith, who from the point of view of causation closely correlates fissuration and histological differentiation, although these differ very considerably in the adult cerebrum, I certainly regard histological differentiation as one of the causes of fissuration, others being arterial supply, and probably also certain mechanical conditions of growth. It is hence not surprising that the projection areas of Flechsig, taking for granted their correctness in the fœtus, do not bear the same relationship to the main cerebral fissures as do these areas in the adult cerebrum.

HISTOLOGICAL DIFFERENTIATION OF THE CORTEX.

I shall now show on the screen the maps of Flechsig, for comparison with the maps of Campbell and of Brodmann. (Fig. 1.) It will be noticed that the visuo-sensory area is much larger than in the adult, as is also the bodily sensibility projection centre, which in the adult lies entirely behind the fissure of Rolando. Flechsig, however, I may remark, expressly states that the majority of the sensory projection fibres pass behind the central fissure. At the period when the experimentally obtained Rolandic area was considered to be both pre- and post-Rolandic, and to be sensori-motor in function, its supposed distribution closely resembled the fœtal bodily sensibility area of Flechsig, and the two were regarded as identical. Now, however, the "motor" and "sensory" areas are regarded as separate and as lying on either side of the furrow of Rolando. It is, by the way, necessary to remark in this connexion, lest I should appear to disregard a recent article by Sir Victor Horsley, that I intend to refer to this when dealing later with the structure and functions of the psychomotor area.

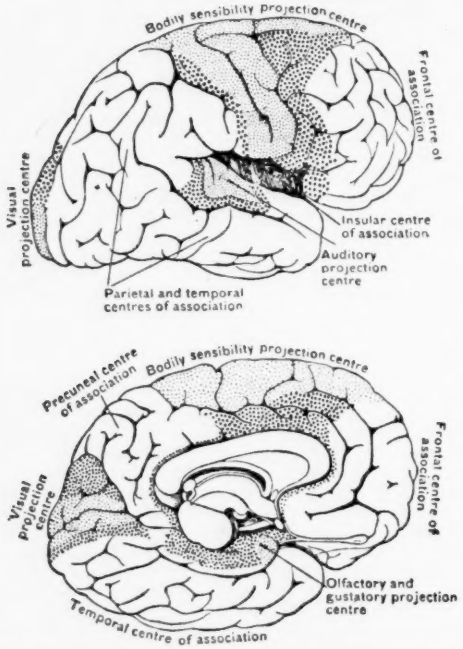
[On the plate which was then exhibited were arranged for comparison two sets of maps by Campbell, published in the years 1904 and 1905, and the maps of Brodmann.]

In view of the great difficulties involved in the cutting up, blocking, sectioning, orientating, and reproducing in diagram form of the cortex of entire human hemispheres, considerable differences might well be expected in maps prepared by two totally independent investigators. It is, however, difficult to understand the well-marked differences which exist in the case of the two pairs of diagrams of Campbell, one of which is contained in a preliminary communication and the other very shortly afterwards in his monograph, since the fissuration of the two is identical. In the case of the prefrontal, the frontal, the parietal, and the visuo-psychic regions, the differences in distribution are very considerable, in view of the fact that, in the case of a particular brain, either the lines of demarcation should be very exact or they should be left indefinite.

On the face of it, the maps of Campbell appear to be

the more diagrammatic and the less accurate of the two sets, and this impression has been confirmed from my personal acquaintance with many regions of the cortex, particularly the frontal lobe and the visual areas. I would also refer to a recent paper by Gordon Holmes on the histology of the post-central gyrus, in which the findings of Brodmann are confirmed. I am nevertheless of the opinion, without disputing in any way the entire accuracy of these particular maps of Brodmann, that the exact differentiation of the greater portion of the grey mantle into such rela-

FIG. 1 (AFTER FLECHSIG).


Bodily sensibility projection centre
Frontal centre of association
Visual projection centre
Insular centre of association
Auditory projection centre
Parietal and temporal centres of association
Precuneal centre of association
Bodily sensibility projection centre
Frontal centre of association
Visual projection centre
Olfactory and gustatory projection centre
Temporal centre of association

The "centres of projection" and "centres of association" of Flechsig. The small dots are placed in the chief focus of each centre of projection. Around these chief foci are the regions to which a smaller number of fibres of projection pass; these are indicated by larger dots. The areas, which represent the different cortical spheres indicated by Flechsig as the result of his embryological studies, are not directly comparable in either extent or distribution with the corresponding areas in the adult cerebrum.

tively precise areas as are the Betz-cell area and the visuo-sensory area, will be attended with great difficulty owing to the probability that considerable differences exist in the case of different individuals, and especially so in the case of the poorly developed brains which are often met with in asylum practice. As an illustration of my meaning I will show a diagram of six occipital regions in which many years ago I precisely mapped out and obtained proof of the functional significance of the visuo-sensory area. It will be noticed that both the shape and the apparent extent of this area differ considerably in the several cases, even when difference of age or the existence in some of long-standing blindness is allowed for. Case 1 is a normal male, aged 55 years; Case 2, a female, aged 17 years, is an example of chronic insanity with epilepsy; Case 3, a female, aged 27 years, is an example of chronic insanity with blindness from infancy; Case 4, a male, aged 30 years, is an example of chronic insanity with long-standing blindness; Case 5 is a normal infant, a male, aged three months; and Case 6 is an example of anophthalmos, aged one month. If such individual differences exist in a projection area of early evolution and stable organisation, it is, to say the least, likely that still greater individual differences exist in the later evolved and later specialised regions of association.

As another illustration, this time of probable individual variation only, I will refer in a few words to the recent researches of Marie concerning aphasia and the functions of the area of Broca. It may be accepted, as I have elsewhere remarked, that the thesis of this author with regard to the intellectual impairment exhibited by all aphasics is true, at any rate, if such cases be studied by methods familiar to the alienist. It is not, however, probable that motor aphasia is invariably the result of anarthria + sensory aphasia, although, on the other hand, it is doubtless true that anarthria + sensory aphasia necessarily give rise to the symptomatology of classical motor aphasia. It is certain that in the case of many persons Broca's speech centre is rightly disrated by Marie, whereas it is extremely probable that in others Broca's area is part of the educated psychomotor area, in which case its permanent loss would result in temporary "motor aphasia" with temporary interference with voluntary thought. Such variability with regard to the individual distribution of the special part of the psychomotor area which subserves the evolution of speech is, in my opinion, the only possible explanation of the widely divergent views which are held by equally competent observers.

Before concluding my reference to the histological differentiation of the cortex I wish to mention quite briefly another question of importance. I have indicated the probability, if not certainty, that individual variations occur in the actual extent occupied by the several histologically differentiated areas which have been described. Whilst histological differentiation probably indicates the limits of possible educability, it does not, however, necessitate the existence of functional activity, as Bianchi appears to believe.

A very obvious illustration of this truth may be seen in the motor exhibitions evolved by the psychomotor area, which as you are aware constitute the sole objective indications of cerebral activity. Whether we consider the infinite variety of skilled movements, the numerous highly complex written and spoken languages, or the wonderful gamut of expression and gesture, of which the intelligent human subject is capable, we see in each case gross individual differences in educability. Histological differentiation probably supplies the key with regard to individual potentialities, but it is doubtful whether any single individual of the race has ever even approached the limits of possible educability.

I will trouble you with but one further illustration—namely, the remarkable manner in which such serious disabilities as congenital or early deprivation of the senses of hearing or sight may be compensated for by education. A person suffering from congenital or early loss of hearing is necessarily dumb, and, unless he live in association with other individuals suffering from the same disability or be educated by special means, his mental functions differ little from those of the anthropoid primates. In such persons under either of these conditions the auditory disability is compensated for by shrewdness of vision, and the speech disability by the evolution of descriptive mimicry to a high standard. The deaf and dumb think by mimicry, just as voluntary thought in normal persons occurs by the preliminary activity of the articulatory part of the psychomotor area, which is important evidence, if such be needed, in favour of the truth of the latter thesis. A normal individual may "think to himself" by means of invisible laryngeal and respiratory movements. A deaf and dumb person does not possess the same involuntary ability to hide the results of psychomotor activity during voluntary thought. Further, if such be taught lip-language they readily learn to communicate with normal persons inexperienced in the special mimicry of the deaf and dumb. On the other hand, the congenitally or early blind acquire language just as do ordinary non-reading and non-writing individuals, and in the absence of special education exhibit little or no defect of the mental functions. In such persons, however, loss of sight is usually compensated for by marked hyperactivity of the sense of touch, and by means of special type the blind are able to acquire education which is often little, if at all, inferior to that of many normal individuals.

After these general remarks I pass to the subject I propose laying before you—namely, the evidence which I have obtained from the clinico-pathological study of mental disease, with regard to the functional significance of certain special cortical areas.

I have hitherto confined my attention to four of the numerous regions into which the cerebral cortex is divisible: the visuo-sensory area, which is the best example of the sensory projection spheres; the visuo-psychic zone, which is one of the regions of special cerebral association; and the

prefrontal and precentral regions. As necessary preliminaries, I shall now describe in detail the method which I have employed, and also the manner in which the cortex cerebri undergoes evolution during fœtal life and infancy.

METHOD OF INVESTIGATION.

The method which I am about to describe, and which I have employed for many years, is that of micrometric measurement of the primary cell and fibre laminæ of the cortex. Neither in detail nor in results is it in any way comparable with the macro- and micro-metric mensuration of grey matter which has been performed by several workers for many years, and it is therefore not necessary for me to refer further to this.

For reasons which I shall indicate later I am accustomed to subdivide the cortex, for the purposes of measurement, into the five primary laminæ from which it has been evolved —namely, (1) the outer fibre lamina or superficial layer; (2) the outer cell lamina or pyramidal layer; (3) the middle cell lamina or granule layer; (4) the inner fibre lamina or inner line of Baillarger, which in certain regions contains such bodies as the Betz cells and the solitary cells of Meynert; and (5) the inner cell lamina or polymorphic layer. These five laminæ may more or less readily be identified in all parts of the neopallium, though they differ in their degree of development in different cortical areas. For example, in the psychomotor area the third lamina is of minimal depth and can only be detected by careful examination. On the other hand, in the visuo-sensory area the third lamina is of great depth, the granule layer being duplicated by the interposition in its midst of the fibre layer of Gennari, in which terminate the fibres of the optic radiations.

For the micrometric examination of the cortex it is, however, not sufficient merely to determine the laminæ which it is proposed to measure. Granted that accurately vertical sections are obtained, it is further necessary to define the exact regions of the convolutions which are capable of measurement. In theory the flat external surface of the convolutions is the ideal region, and in certain fœtal brains it is the only one which is available. In practice, however, its sole employment is impossible, if only for the sufficient reasons that a trustworthy number of situations is rarely available and that its degree of development varies greatly, being very different over broad and narrow convolutions. I consequently employ four regions of the convolutions, and from these prepare a general average measurement. These regions are the *flat surfaces* or external parts between fissure lips, the *apices* or fissure lips, the *bottoms* of fissures, and the *sides* of fissures at some point between the apices or fissure lips and the bottoms of the fissures. These regions are shown in the diagram (Fig. 2). It is, perhaps, hardly necessary to remark that in any given section, though it be cut ever so truly, many obliquities exist and only a certain number of regions can be selected. In fact, it is by no means easy to obtain the necessary number of regions for measurement, and it sometimes happens that cases of promise have to be rejected, even after all the sections have been cut and stained. The four well-defined regions to which I have referred are alone capable of accurate micrometric measurement, and for reasons which I shall now give it is possible, after a sufficient number of measurements from these have been averaged, to obtain a trustworthy general average measurement from the four which can be employed for the comparison of case with case.

[Reasons were then given for the choice of these special regions and for their conjoined employment for the preparation of a general average measurement. The methods employed for the preparation of material were referred to, and certain details were given with regard to the method of micrometric measurement.]

The special regions of the human cortex cerebri which I have hitherto dealt with by this method are the visuo-sensory, the visuo-psychic, and the prefrontal, as the most satisfactory examples available of projection, special associational, and higher associational cortex. The reasons for this selection will appear later. I have in all measured 54 regions in 38 hemispheres, which were obtained from 37 cases of various types, including 3 fœtuses, 2 still-borns, 3 infants, 4 normal cases, and 25 examples of various types of mental disease, grading from the idiot with very deficient cerebral evolution, through imbeciles, recent chronic and recurrent non-demented lunatics, and partially demented lunatics, to the gross dement with marked cerebral dissolution. Of the 54 regions measured, 15 are visuo-sensory, 15 are visuo-psychic, and 24 are prefrontal. The visuo-sensory and visuo-psychic results are from the same cases, and in theory it would appear desirable that all the regions should have been examined in every case. In practice, however, this has been impossible owing to the laborious nature of the work and the length of time it has been in progress. It has also been found to be unnecessary, on the one hand, because the differences in measurement are well marked and definite, and on the other because the results of prefrontal measurement are of a different type from those obtained from the visuo-sensory and visuo-psychic regions. I may add that it has in consequence been possible up to the present to measure a much larger series of cases than would otherwise have been available. I have, however, specially selected a suitable well-marked case, and measured all the three regions, in order to obviate such a possible

FIG. 2.

REGIONS OF CORTEX CHOSEN FOR MICROMETRIC MEASUREMENT.

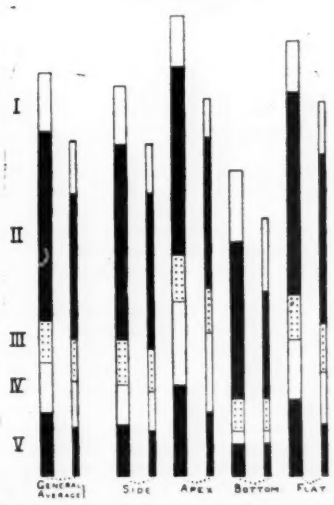
'A'-APEX, 'B'-BOTTOM, 'F'-FLAT, 'S'-SIDE.

MEASUREMENTS OF VISUO-PSYCHIC CORTEX OF NORMAL ADULT.

REGIONS OF CONVOLUTIONS	I	II	III	IV	V
SIDE AVERAGE OF 36	·169	·909	·200	·177	143
APEX AVERAGE OF 55	·252	·865	·217	·189	·410
BOTTOM AVERAGE OF 12	·349	·737	·165	·067	·166
FLAT AVERAGE OF 19	·193	·948	·211	·282	·364
GENERAL AVERAGE IN MM.	·274	·864	·200	·229	·295

DITTO OF INFANT, AGED 3 MONTHS.

REGIONS OF CONVOLUTIONS	I	II	III	IV	V
SIDE AVERAGE OF 18	·219	·721	·193	·178	·214
APEX AVERAGE OF 18	·178	·700	·206	·168	·297
BOTTOM AVERAGE OF 6	·327	·496	·149	·069	·190
FLAT AVERAGE OF 3	·236	·786	·221	·231	·236
GENERAL AVERAGE IN MM.	·265	·676	·191	·212	·224



This figure illustrates the method of micrometric measurement. In the upper portion of the figure are shown the four regions of the convolutions, which alone are capable of satisfactory measurement. In the middle part the results of the micrometric measurement of the visuo-psychic cortex of the normal adult and of an infant aged three months are given. In the lower portion the different cortical laminæ are shown graphically. These from above downwards are (1) the outer fibre or superficial lamina; (2) the outer cell or pyramidal lamina; (3) the middle cell or granule lamina; (4) the inner fibre lamina or inner line of Baillarger; and (5) the inner cell or polymorphic lamina. On the left hand side are shown the general average measurements obtained from a normal adult and an infant aged three months respectively; and on the right hand side the average "side," "apex," "bottom," and "flat" measurements from which these general average measurements are produced.

criticism and to prove the points to which I have just referred.

I purpose demonstrating in the second lecture that the essential physical basis of mental disease consists on the one hand in an imperfect development of the cell laminæ of the cortex, which is of the nature of a true sub-evolution, and on the other in degrees of decrease of the cell laminæ which are of the nature of a true involution or dissolution, since such decrease in depth takes place in the converse order to that in which the cell laminæ are developed during the process of normal growth. As one of the necessary preliminaries to this demonstration it is therefore desirable to describe in some detail the normal mode of evolution of the lamination of the cortex. For this purpose I shall employ the prefrontal region, since this is the portion of the cerebrum which is the last to be normally evolved, and also the area in which are present in maximum intensity those indications of sub-evolution and involution which occur in cases of mental disease.

EVOLUTION OF LAMINATION OF THE CORTEX.

The plates which I am now about to exhibit are intended to show from the general point of view the manner in which the lamination of the cortex becomes evolved. All the micro-photographs of this series are of exactly the same magnification.

[A photograph representing the right hemisphere of a human fœtus of about four months was then exhibited. The fissure of Sylvius and a depression which occupies the site of the future fissure of Rolando are present, as also are numerous vascular grooves.]

In the micro-photograph (Fig. 3) is shown a section of the prefrontal cortex of this hemisphere. This will be seen to consist of a layer of undifferentiated neuroblasts covered by a superficial layer of neuroglia, into which irregular masses of neuroblasts project. The neuroblasts are most closely packed towards the surface and, at about the level of the lower trisection, indications exist of commencing differentiation of the nerve cells. The cortex has not begun to laminate, and its total depth is less than half of that of the normal adult.

[A photograph was then shown of the left hemisphere of a fœtus of about six months. The brain is somewhat larger and firmer, and the main fissures are defined or appearing. The numerous vascular grooves seen in the previous hemisphere have largely or entirely disappeared, and the prefrontal region of the cortex consists simply of a flat external surface.]

The prefrontal cortex of this case, as is seen in the micro-photograph (Fig. 4), shows little increase in depth but definite signs of the commencement of the process of lamination. The inner cell lamina or polymorphic layer is being separated from the rest by the development of the inner fibre lamina or inner line of Baillarger. The middle cell lamina or granule layer is visible, owing to the shape and mode of aggregation of its constituent cells, and the outer cell lamina or pyramidal layer can also be made out, and exhibits a partially columnar arrangement of its constituent cells in its lower two-thirds and a massing together of the cells in its upper third. It will be at once evident to anyone familiar with the appearance of the adult cortex that development is taking place from within outwards and that the superficial laminæ, especially the outer cell or pyramidal, are as yet of very deficient depth, the last being only about one-fourth of the adult normal.

It will be noted, on comparing the fourth and sixth months fœtuses, that the development of lamination is coincident with greater firmness of the brain and disappearance of the numerous vascular grooves, rather than with any notable increase in the complexity or size of the hemispheres. Microscopically, however, an important advance has occurred —namely, the commencement of the process of lamination and a cleavage of the neuroblasts into an upper and a lower portion. In view of the evidence I shall produce with regard to the functions of the inner cell lamina I would remark that this early cleavage of the partially differentiated neuroblasts of the cortex into an upper and a lower portion is an occurrence of the greatest significance.

[A photograph was then shown of the right hemisphere of a fœtus of seven to eight months. The magnification is somewhat less than that of the preceding and following brains. The fissuration is completed with the exception of the less important subsulci, and the brain has a general resemblance to that of the adult.]

As is shown in the micro-photograph (Fig. 5) marked progress has taken place with regard to the development of the cortex and the differentiation of the nerve cells. The inner cell lamina is clearly marked off by the inner fibre lamina from the middle cell lamina, and the outer cell lamina or pyramidal layer shows a notable increase both in the depth of its lower part and in the degree of differentiation of the constituent cells of this. The upper portion of this lamina is still in a poorly differentiated condition, and the aggregation of its embryonic constituent cells is by contrast more visible than is the case in the fœtus of six months.

[In the next photograph was shown the unstripped right hemisphere of a stillborn male infant. The resemblance to the adult appearance of the brain is now well marked.]

In the micro-photograph (Fig. 6) it will be seen that the cortex now exhibits a general resemblance to that of the adult. The nerve cells have largely taken their permanent form, and, being less embryonic and smaller, appear less crowded. A further important factor in causing less aggregation of cells is the increased superficial area of cortex and the consequent smaller number of cells in a section of the same thickness. The outer cell lamina or pyramidal layer is, however, still little more than one-half of the adult normal depth, and exhibits a very obvious aggregation of embryonic cells in its upper part.

In contrast to the preceding illustrations, the following micro-photograph (Fig. 7) shows the depth and general appearance of the adult normal cortex. The magnification is four-fifths of that of the preceding micro-photographs. The great increase in the depth of the outer cell lamina or pyramidal layer which has occurred is very evident.

It was originally my intention to follow the further development of the cortex in children of different ages, but I found that such notable individual differences in the degree of the development of the cortex occurred as precluded the possibility of obtaining definite results. This truth is the anatomical counterpart of the known great individual differences in degree of mental development which exist in infants and young children.

In the next diagram (Fig. 8) are shown, in percentages of the normal, the general average measurements which I have obtained from the prefontal cortex of a number of cases. They very clearly indicate the point to which I have just referred. The second case, though it falls well into series with the remainder, exhibits certain differences in the depth of the fourth and fifth laminæ which are due probably to the fact that all the measurements are from the flat external surface owing to the absence of fissures. The fourth and fifth cases exhibit the individual differences in degree of development which I found to occur in two stillborns; and the case in the sixth column, that of a marasmatic infant of retarded general development, is also interesting in that the outer cell lamina is of less depth than that of the second stillborn, whilst all the other laminæ are of almost exactly the same depth as are those in the latter. Further, the diagram shows quite definitely that the laminæ are evolved from within outwards, and that the inner cell lamina approaches the adult normal depth at birth, at which date the middle cell lamina is about three-fourths and the outer cell lamina still little more than one-half of the adult normal depth.

With regard to the date at which evolution of the cortical laminæ occurs, I have at present merely sufficient evidence to show that it takes place earlier in the visuo-sensory area (projection sphere) than in the visuo-psychic (zone of special association), and earlier in the latter than in the prefrontal region (zone of higher association). This evidence is shown in the following diagram (Fig. 9), in which are collected a series of observations on the cortex of certain fœtuses, infants, and adults. The following are the chief points illustrated in the figure. In the visuo-sensory area of the infants of 1 and 3 months the whole of the cell layers have attained to almost the normal adult depth, and the outer cell layer is rather better evolved in the former than in the latter, in spite of the existence of congenital blindness in that case. On the other hand, in the visuo-psychic zone none of the layers are so far evolved, and the outer cell layer of the infant of one month is much shallower than that of the infant of three months. The visuo-sensory cortex is thus obviously evolved earlier than is the visuo-psychic. A

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 3.—The prefrontal cortex of a fœtus of four months. × 94 diameters. The cortex has not begun to laminate, and consists solely of a superficial layer and a layer of undifferentiated neuroblasts.

FIG. 4.—The prefrontal cortex of a fœtus of six months. × 94 diameters. The process of lamination has commenced. L.I. = outer fibre lamina; L.II. = outer cell or pyramidal lamina; L.III. = middle cell on granule lamina; L.IV. = inner fibre lamina; and L.V. = inner cell or polymorphic lamina.

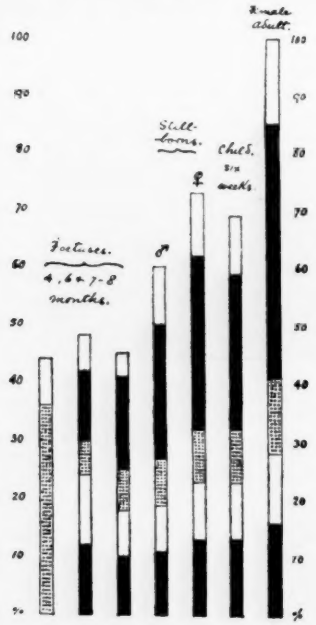
FIG. 5.—The prefrontal cortex of a fœtus of seven to eight months. × 94 diameters. L.I. to L.V. as in Fig. 4. It will be noted that L.II., the outer cell or pyramidal lamina, though the latest to develop, has already become the deepest layer of the cortex.

FIG. 6.—The prefrontal cortex of a stillborn male infant. × 94 diameters. The cortex has begun to lose its embryonic characters. The outer cell or pyramidal lamina (L.II.) is still less than one-half of the adult normal depth. L.I.-L.V. as in the preceding figures.

FIG. 7.—The prefrontal cortex of a normal adult. ×72 diameters. The magnification is four-fifths of that of the preceding micro-photographs. L.I.-L.V. as in the preceding figures.

further interesting point shown in the diagram is the low evolution of the middle cell lamina or receptive layer of the cortex of the congenitally blind infant of one month, and the almost adult development of this in the infant of three months. The same detail is visible in the case of the visuo-psychic region, and this is alone sufficient to hall-mark the visuo-psychic region as a zone of special visual association, especially when it is noted that this lamina is in the infant of three months of practically the adult depth, whereas the inner cell lamina of this case is by no means so well developed. In other words, the granule or receptive layer of the visuo-psychic zone follows the order of its evolution in the visuo-sensory area in being ahead of the inner cell lamina in its degree of development.

FIG. 8.



The figure shows, in percentages of the normal, the general average measurements of the prefrontal cortex of a series of fœtuses and infants. The laminæ from above down are as in the preceding figures. The illustration indicates that the cortex evolves from within outwards, the inner cell lamina being the first to appear and rapidly attaining almost to the adult depth, and the outer cell lamina the last, this lamina at birth being still only about one-half of the adult normal depth.

In the case of the prefrontal region, though the results are not comparative, they are sufficient (especially when combined with other data, to which I shall refer later) to indicate that evolution is individually variable and occurs at a later date than is the case in either of the other two regions.

LAMINATION OF DIFFERENT REGIONS OF THE CORTEX.

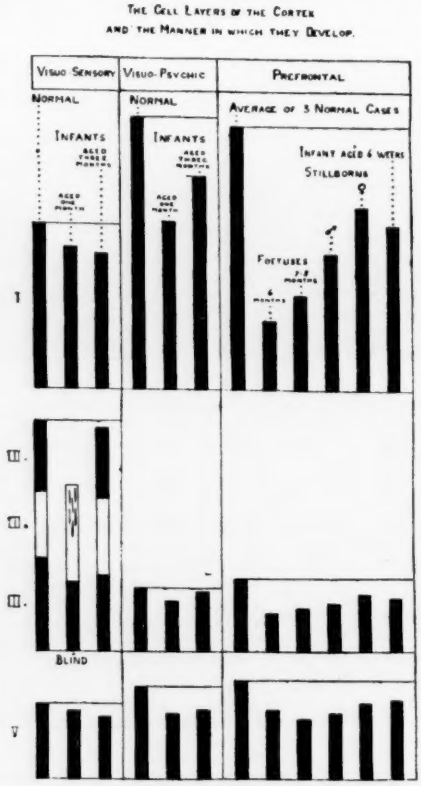
I now propose to illustrate the lamination of the regions of the cortex which are under consideration, and in the case of the prefrontal area it is my intention, for reasons which I shall presently detail, to describe at some length its general structure. I would add that the micro-photographs I am about to exhibit are of different magnifications, as it is necessary that the whole depth of the cortex should be present.

[The lamination of the visuo-sensory and visuo-psychic regions was then described and illustrated.] One of these illustrations, taken from a fœtus of 7 to 8 months, is shown in Fig. 10. On the right hand side is seen the periphery of the visuo-sensory region, in the middle the abrupt passage of this type of cortex into the surrounding visuo-psychic, and on the left hand side the cortex of the visuo-psychic zone. It will be seen that the line of Gennari suddenly ceases and the two layers of granules run into one, which occupies the site of the inner, the outer cell or pyramidal lamina at the same time increasing to almost double the depth. A comparison of this illustration with Fig. 5, which shows the prefrontal cortex of the same case, indicates that the last is in degree of development far behind the cortex of the visuo-sensory and visuo-psychic regions, which, particularly the former, much more closely resemble the adult type.

[The general fibre architecture of the cortex was then referred to, with the object of indicating that the horizontal fibre bands of the cortex bear no necessary relationship to the original laminæ from which the cortex has been evolved. Finally, the prefrontal cortex was referred to in greater detail in consequence of the fact that the great delicacy and high complexity of the structure of this region have been denied.]

It has been definitely stated by Campbell in his recent monograph, which has attracted great attention, that the prefrontal cortex is of slight structural and functional significance. He remarks: "The structural development of the 'prefrontal' cortex is exceedingly low. It presents an extreme of fibre poverty. All the fibre elements are of delicate calibre, and its association system is particularly deficient. Its cell representation is on a similar scale. The cortex is also shallow." There is no mistake, as has been suggested, with regard to the region under consideration, as a comparison of the diagrams of Campbell and of Brodmann at once indicates; and I purpose showing that the cause of the great discrepancy in the descriptions lies in the difference of method adopted. Campbell used throughout his investigations the Wolters-Kulschitzky method, which

FIG. 9.



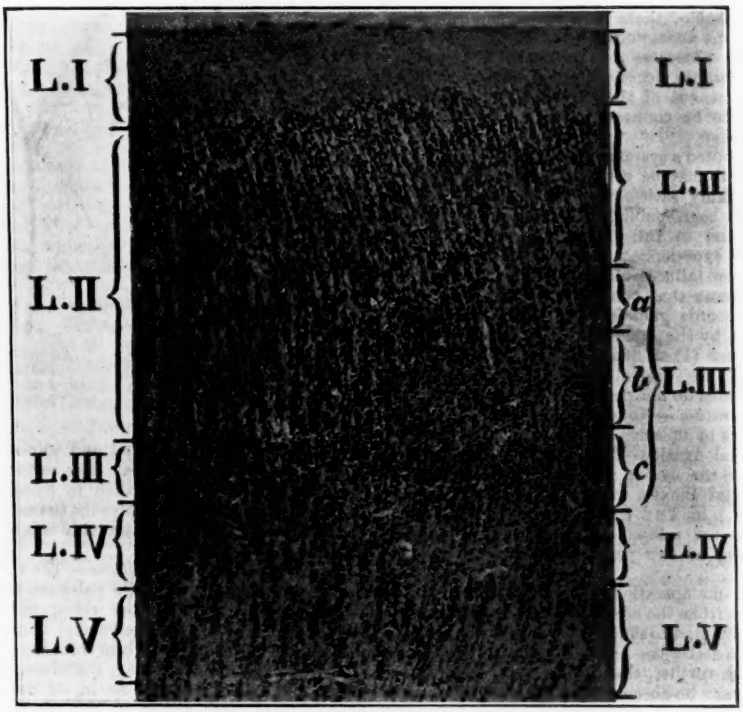
The figure shows the mode of evolution of the cell laminæ of the cortex of the visuo-sensory, visuo-psychic, and prefrontal regions. The bottom series represents the inner cell or polymorphic lamina, the middle series the middle cell or granule lamina, and the upper series the outer cell or pyramidal lamina. A description is given in the text, but in general the figure suggests that the visuo-sensory cortex develops before the visuo-psychic, and this before the prefrontal; that the inner cell lamina develops before the middle and the middle before the outer; and, finally, that in the visuo-sensory and visuo-psychic regions the middle cell or granule lamina is the receptive lamina of the cortex and develops more rapidly than does the inner cell lamina of these regions.

as ordinarily employed I regard as quite unreliable for this especial purpose. The method, on the other hand, which I adopt for the staining of the fibres of the cortex is based on the results of a research which I conducted many years ago into the chemistry of the Weigert-Pal method. I found that this process is not a specific method for the staining of medullated nerve fibres with hæmatoxylin, but is a method of dyeing fibrils which comprises three distinct operations—the mordanting of the fibrils, the formation of a lake in them by the employment of a basic dye, and, finally, the removal of the stain by oxidation from nearly every other part of the complex tissue under treatment. I compared the method with what would occur were a fabric composed of different fibres interspersed with fine glass threads, stained by a commercial process. The glass threads would refuse the mordant and consequently the lake, whereas the fibres would retain the stain. In the case of human tissue, the more highly metabolic elements represent the fibres, and the more fixed and lowly metabolic elements the glass threads. Further, the process is applicable to any, and not solely to nervous tissue—e.g., kidney, involuntary muscle, &c., form beautiful low-power specimens. The mordanting of the tissue is the most important process, and osmic acid, iron alum and ammonium molybdate, used separately or in succession, are the strongest mordants. My results were independently and almost simultaneously confirmed by Herrick, and the method has for years been successfully applied to the staining of cortical fibrils by G. A. Watson, who in 1903 published details of the special mode of employment necessary to display them, and of the difficulties which attend the obtaining of positive results. The usual Weigert-Pal methods, however, are still in general use, and by means of these it is practically impossible to stain even imperfectly the delicate fibrils of the prefrontal cortex.

[Photographs were then shown illustrating the special method referred to. The first series indicated the results of staining different types of fibre architecture of the nervous systems of the frog, dog, and cat. The second illustrated the minute structures of the prefrontal region. The specimens indicated the high complexity of the fibrillar meshwork throughout the grey matter, since, by means of high-power micro-photographs, the whole depth of the cortex was illustrated.]

In view of these photographs it is impossible to deny the great complexity of the fibre architecture of the prefrontal region, and I may add that John Turner in 1907, the year following the appearance of my paper on this subject, also combated the statements of Campbell and remarked that the prefrontal region, treated by a special method of his own, shows a wealth of intercellular fibres probably greater than in any other region of the cortex.

FIG. 10.



The cortex of a seven to eight months' fœtus. 94 diameters. The microphotograph is prepared at the periphery of the visuo-sensory area, and shows the passage of the visuo-sensory cortex into the visuo-psychic. L.I. to L.V. are as in the preceding illustrations; L.III.A and L.III.C are the two layers of granules; and L.III.B is the intermediate fibre layer or line of Gennari, of which three layers the middle cell lamina consists in the visuo-sensory area. In the centre of the illustration it will be noted that the line of Gennari, L.III.B, ceases, and that the layers of granules, L.III.A and L.III.C, run into one to form the granule lamina, L.III., of the visuo-psychic cortex. A comparison of this figure with Fig. 5, which illustrates the prefrontal cortex of the same case, very clearly demonstrates that the visual cortex of this case is much more advanced than that of the prefrontal region in its degree of development. These figures thus afford a partial graphic illustration of the truth that the visuo-sensory cortex develops before the visuo-psychic and the latter before the prefrontal.

THE INVALID CHILDREN'S AID ASSOCIATION.—The annual meeting of this association will be held, by kind permission of the Duchess of Marlborough, at Sunderland House, Curzon-street, London, W., on April 27th, at 3 o'clock. The Duchess of Marlborough will preside and the Bishop of Bath and Wells, Dr. Robert Hutchison, and Mr. D'Arcy Power will be among the speakers. Applications for tickets of admission may be made to the secretary, 69, Denison House, Vauxhall Bridge-road, Westminster, S.W.

ON THE FAILURE OF NERVE ANASTOMOSIS IN INFANTILE PALSY.

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AND
R. W. MURRAY, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

FOR the last three years or so we have been watching with much interest the progress of several patients for whom, in consequence of the crippling from anterior poliomyelitis, a nerve anastomosis was performed. The observations are on five patients, four of whom suffered from infantile palsy; in two the upper limb was affected, in two the lower. The fifth case was a traumatic lesion of the great sciatic nerve, due to a dislocation of the hip. We may say at once that in none of these cases has any improvement, the direct result of the anastomosis, resulted. Improvement due to the natural processes of repair in the cord was observed to a considerable degree, quite sufficient to satisfy the parents of the benefit of the operation, but, as will be obvious, in no wise to be connected with the actual surgical interference undertaken.

We have not attempted a systematic review of the literature on this subject, but it may be confidently asserted that very few instances of a truly satisfactory nerve anastomosis for infantile palsy have been published. The failure of this method, which looked so full of promise, is particularly disappointing. Our experience suggests that as successful cases are certainly few failures may be more numerous, and it is of some importance that those also should be recorded. We consider such records gain in value when recorded by a physician as well as by the operator. The cause of failure may be either because (1) an inappropriate time is chosen for the operation; (2) the surgical technique is at fault; or (3) physiological reasons do not permit of recovery.

1. *The time for operation.*—No one has insisted more upon the power of recovery of muscles under proper treatment—rest, massage, postural fixation—than Mr. Robert Jones, and we venture to refer to the section on Treatment in a paper on Palsies of the Brachial Plexus, written by that surgeon and one of us (W. B. W.) in THE LANCET of Dec. 15th, 1906, where several cases are related of great improvement in infantile palsy as long as two years after the onset of the disease.

We consider that no operation should be contemplated unless for six months from the onset of the disease assiduous treatment has been directed to the palsied muscles to improve their nutrition and to assist the return of power by adequate postural support, and, further, that at the end of this time faradic irritability must be absent, although a strong current is used whilst the patient is anæsthetised. The following case well illustrates this rule:—

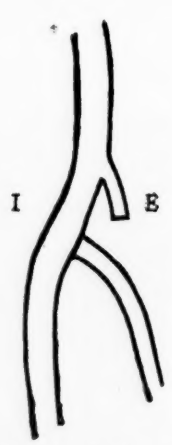
A woman, aged 27 years, seen in private practice and so circumstanced that the best of nursing, medical attention, with constant intelligent coöperation of herself and husband was obtained, was seized in the early part of August, 1906, with poliomyelitis anterior acuta, causing widespread palsy of both limbs. It was not until the lapse of six months that the patient recovered power enough to walk, and at the end of that time the flexors of the forearms feebly responded to voluntary effort and to the faradic current. The deltoids were powerless and gave no trace of faradic excitability. A year later all the muscles except the deltoid, which remained completely powerless, had practically fully recovered.

Experience, we think, shows that it is the deltoid which, in all acute peripheral palsies of the upper arm, shows the least response to the methods of nature or art, and some means of restoring the power of abduction of the arm is urgently required—possibly the circumflex nerve may be anastomosed to another nerve. When a patient has not been under the most favoured circumstances adequate treatment should be adopted at least for three months before surgical interference is attempted. At the end of these periods of time we think that in cases of infantile palsy some degree of certainty as to the impossibility of future natural recovery may be obtained.

In passing, it may be remarked that in obstetrical palsy and in spontaneous neuritis the natural tendency to complete recovery is greater than in infantile palsy, and we think that amongst recorded cases of surgical treatment in the former group of cases are to be found instances in which the operation was superfluous. In the paper just mentioned by Mr. Robert Jones and one of us, of 6 cases of obstetrical palsy, 2 completely, 3 partially recovered, and of 4 cases of spontaneous neuritis, 3 completely recovered.

2. *The surgical technique.*—In every case the paralysed nerve was completely divided. In three cases the peripheral end of the nerve was engrafted into a longitudinal slit made in the sound nerve (Fig. 1). In two cases an end-to-end anastomosis was made. In one of these the divided external popliteal was joined to a flap raised from the sound internal popliteal nerve (Fig. 2); in the other case the spinal accessory

FIG. 1.



The external popliteal nerve E has been divided and grafted into a slit made in the internal popliteal nerve I.

FIG. 2.

An end-to-end anastomosis has been made by raising a flap from the healthy nerve.

nerve was completely severed and joined to the divided fifth cord of the brachial plexus. The suture material used was very fine silk. Care was taken in handling the nerves and in passing the sutures to bruise the tissues as little as possible. In no case was there any trouble whatever as regards the healing of the wound.

3. *Physiological considerations.*—The studies of Wichmann on the pathology of infantile palsy are the most valuable we have; they plainly show the widespread distribution of the lesion, that not only are the ventral cornual cells the site of disease, but also that the white tracts and pia mater are often affected. The final scar may, therefore, be most destructive, not so much in its extent as in its degree. Nevertheless, experimental work either on the effects of poisons on the nerve cells or on the results of various sections of peripheral fibres having origins in cells shows that the latter present a high degree of capacity for repair and that the *restitutio ad integram* may be complete. The clinical evidence that we are using a functioning nerve for the purpose of grafting is, of course, the presence of voluntary power and of faradic excitability in the muscles supplied by it. But the nature of the pathological lesion suggests that though these signs are present, yet even in the segment in the spinal cord, from which the functioning nerve takes origin, recovery may be incomplete. Hence one cause of the lack of success may be that the effort is too much; there may be sufficient nerve cells left to supply one group of muscles, but insufficient to supply two. If this be the explanation, it appears that the operation must often fail in its object, yet the very valuable observations of Kilvington[1] have shown that after section of a nerve trunk the axons branch, hence the peripheral supply at least may be increased.

Further, the state of the peripheral apparatus must be considered. Many are the battles which have been waged on the field of the facts and theories of nerve regeneration. We consider that the evidence of Langley and Anderson,[2] Head and Ham,[3] Mott, Halliburton, and Edmunds,[4] conclusively show that axons are alone reformed by downward

[1] Brit. Med. Jour., vol. i., 1905.
[2] Journal of Physiology, vol. xxxi., p. 418.
[3] Ibid., vol. xxxii.
[4] Ibid., vol. xxxi, p. 7.

growth from the centre, though a state of peripheral preparation occurs, as demonstrated by Ballance and Purves Stewart.[5] Until union with the central end is made the nerve remains in a resting stage, consisting of spindle-shaped fibres and elongated nuclei. For some time the isolated nerve remains susceptible, and axis cylinders growing from above find themselves in a responsive soil, but as time goes on the soil loses its virtue and the axis cylinders meet with greater and more resistance. Hence the contrast between the results of primary and secondary suture.

The intervals of time from the onset of the disease, in our cases, which had elapsed before anastomosis was performed were respectively 14, 8, 9, 6, and 8 months (see accompanying table). After such intervals secondary suture may, however, be, and often is, perfectly successful. It is difficult to believe that there can be any difference at given times in a stretch of nerves which has been kept completely separated from its central piece and a nerve whose cells of origin have been destroyed. Hence we must return to the state of the ventral cornual cells as an important factor in explaining the failure of nerve anastomosis in infantile palsy.

Although after section of a ventral root, or of a mixed nerve, the cells of origin suffer the well-known *reaction à distance*, yet Warrington[6] showed that after long periods of time all the cells had practically returned to the normal state. Far otherwise must it be in a segment of the cord which has passed through the storm of the violent disturbance constituting the pathology of infantile palsy. It will be remembered that Thorburn in his work on the Surgery of the Spinal Cord, whilst accepting the teaching of physiological experiment that a muscle derives its nerve-supply from several segments of the cord, yet demonstrates that clinically a muscle takes its main supply, its working power as it were, from one segment. When damaged this segment may so far recover as to carry out its own proper work, but it is unable to extend its sphere of action beyond its allotted task; there is no reserve to draw upon.

It may be that although we have failed to find any improvement in three years, yet that this time even is not long enough. Sherren[7] mentions a case of his of secondary suture of the brachial plexus in which voluntary power did not return for 182 weeks and faradic excitability for 333 weeks. So far, however, as we have gone, both clinical experience and physiological considerations lead us to give a very conservative opinion on the value of this method of treatment. We may mention that an additional case of failure to relieve an upper arm palsy was recorded by one of us and Robert Jones in THE LANCET in December, 1906. We do not, however, desire in the least to entirely condemn the operation; only in this method does there appear in many instances any hope for the patient. Perhaps we have hitherto been too ambitious; may it be that an attempt to restore the function of one muscle may be successful and the residual capacity of the spinal cord be sufficient to meet the smaller demand? Failure in this direction renders the immediate and early treatment in infantile palsy all the more urgent. If there be any means of limiting the range of destruction of the cord it must be employed and afterwards the muscles assiduously tended and guarded during their convalescence.

We now relate the essential clinical features in our cases.

CASE 1.—A.M. The illness began on Sept. 25th, 1906, with drowsiness, malaise, and fever, and four days later the patient was admitted to hospital. There was extensive paralysis of the left upper and both lower limbs, but it was found that under an anæsthetic faradic excitability was present in all the muscles of the left lower limb except the extensors of the foot, whilst in the right lower limb the quadriceps in addition failed to respond. The palsy of the left upper limb was more severe, slight flexion of the fingers and wrist alone being possible, nor except in these could any faradic excitability be obtained. The right upper limb was unaffected. Under treatment the lower limbs rapidly improved, so that in a month's time the patient could just stand with assistance. This improvement was maintained and the lower limbs made a practically complete recovery. No change occurred in the left upper limb. Mr. Murray operated on May 7th, 1907. The fifth cord of the brachial plexus was divided and joined end to end to the spinal accessory nerve.

Note on July 16th, 1908, reads: "Absolute loss of power in all the muscles of the left upper limb except the flexors of the fingers and hand; these react to faradism. No others can be stimulated."

CASE 2.—E. J., aged 2½ years. Was first seen in March, 1906. Infantile palsy in the right upper limb of two months' duration. She had almost complete loss of power, the arm hanging helplessly by the side. Could just feebly grasp the fingers of observer. Under treatment some improvement occurred in the forearm, but the shoulder girdle group remained powerless. Mr. Murray operated on Oct. 18th, 1906. The fifth cord of the brachial plexus was completely divided and engrafted into a longitudinal slit made into the sixth cord.

The child has been seen several times. On Sept. 3rd, 1908, note reads: "Grasp strong and all the forearm muscles act well. Shoulder girdle muscles, deltoid, biceps, brachialis anticus, and spinati paralysed, wasted, and without faradic excitability. The child is capable by a manœuvre of fixing the forearm. This is first produced and then the extensors of the wrist flex the arm to some extent." On July 8th, 1909, note reads: "Condition remains the same."

CASE 3.—E. C., aged 4 years. Admitted to hospital on Oct. 21st, 1906. In May of this year she had rapidly become palsied in both lower limbs. On examination these presented the characteristic signs of infantile paralysis; the only apparent voluntary power was that of slight flexion of the thighs and of the right hamstring muscles. Electrical testing, however, showed a wider distribution of faradic excitability, the adductors of the thigh and the sural muscles reacting. The quadriceps extensor cruris, glutei, and extensors of the ankle did not give a reaction. The patient was carefully massaged, the feet supported by sand-bags, and the galvanic current employed. A month later signs of recovery were observable in the thigh muscles and the power of the calf muscles had increased. The extensors of the feet remained, however, absolutely powerless and inexcitable to strong faradism when the patient was anæsthetised. On Nov. 27th Mr. Murray operated. The external popliteal nerve was divided and engrafted into the internal nerve. (See Fig. 1.)

On July 16th, 1908, the child was seen again for the first time since leaving the hospital. The right limb showed considerable improvement; flexion of the thigh on the pelvis and of the foot on the ankle were fairly well performed; the leg could be slightly extended and the knee-jerk was present. The left limb had not altered much; there was more power in the flexors of the thigh and calf muscles. The extensors of the ankle gave not the least evidence of improvement. Electrical testing gave corresponding results.

The child has been seen several times since. Our last note on Oct. 15th, 1909, reads: "Improvement continues in the thigh muscles on the right side; practically no alteration in the left limb. No improvement in the condition of the extensors of the foot. The child walks with calipers and the mother is much pleased."

CASE 4.—W. C., aged 12 months. First seen on March 31st, 1907. Infantile palsy dating from the age of 7 months. It was found that the extensors of the right foot alone were paralysed and gave no response to the faradic current, the patient being anæsthetised. Mr. Murray operated in April, 1907. The external popliteal nerve was joined to a flap raised from the internal nerve. (See Fig. 2.)

The child was examined on several occasions, the latest being Oct. 15th, 1909. Our notes read: "The right foot is in the position of equino-varus, the thigh and calf muscles are well nourished, all movements of the thigh and flexion of the foot well performed. Knee jerks present. No power and no faradic excitability in the extensors of the foot."

CASE 5.—F. B., aged 25 years. In October, 1905, severe injury, attended with loss of consciousness and dislocation of right hip-joint. On May 31st, 1906, there was complete paralysis of tibialis anticus, extensores hallucis et communis digitorum, with full R.D. (F. = 0, G. sluggish, A. > K., and both more excitable than on left side). Some weakness also in tibialis posticus and peroneus longus, but faradic irritability present. The calf muscles were normal. There was a small area of loss of epicritic sensation; deep pressure and protopathic sensation intact. It was supposed that the injury had damaged the external popliteal fibres in the trunk of the great sciatic, especially those making up the anterior tibial nerve, whilst the fibres for the musculo-cutaneous had largely escaped; the loss of epicritic sensation was, however, due to lesion of these fibres. On June 26th, the popliteal space was exposed. The sciatic nerve was seen to be formed by two nerve trunks very different from each other. The external popliteal part was thin, bluish looking, and softer than the internal popliteal part. The external popliteal nerve was cut across in the upper part of the

Data from the Cases Related Above shown in Tabular Form.
(No improvement found in any instance.)

Name.	Age at time of operation.	Duration at time of operation since onset of illness.	Nature of operation.	Time elapsed since operation up to last observation.
E. J.*	2 years 2 months.	14 months.	Fifth cervical nerve placed in longitudinal slit in sixth.	4 years.
A. M.	3½ years.	8 months.	Fifth nerve divided and joined end to end with spinal accessory.	2½ years.
E. J.	3 years.	9 months.	Fifth nerve completely divided and engrafted into longitudinal slit in sixth.	2½ years.
E. C.	4 years.	6 months.	External popliteal divided and engrafted into internal popliteal.	3 years.
W. C.	13 months.	8 months.	External popliteal nerve divided and joined to a flap raised from internal popliteal.	2½ years.
F. B.†	26 years.	9 months.	External popliteal divided and placed in incised slit in internal popliteal.	22 months.

* Mr. Robert Jones and W. B. W. † Injury to great sciatic nerve.

[5] The Healing of Nerves.
[6] Journal of Physiology, vol. xxiv., 1899.
[7] THE LANCET, 1906, vol. i., p. 816.

popliteal space and prepared so that it was placed in an incision made into the internal popliteal nerve. This incision was first longitudinal and then the fibres divided transversely to some depth in the substance of the nerve. The note on Oct. 4th, 1906, says that no recovery in the anterior tibial nerves had taken place. The tibial posticus had fully recovered.

When last seen on April 15th, 1908, no change had occurred.

Note.—Since the above was written a case lost for some years has been found. H. J., aged 13 years. Both lower limbs paralysed since infancy. The muscles supplied by the anterior crural nerve are those chiefly affected. She was first seen in 1905, and was then 8 years old. She was wearing a Thomas's knee-splint in which she could stand, but was unable to walk. The right limb was the weaker of the two. On Jan. 17th, 1905, Mr. Murray joined the anterior branch of the right obturator nerve to the nerve supplying the rectus muscle, end to end. It is five years since the operation, *and though there is no improvement as a direct result of the anastomosis*, still, strange to say, the child can now walk, with the assistance of a splint, a distance of 3 miles.

AN ANATOMICAL INQUIRY INTO THE PATHWAY OF TUBERCULAR INFECTION.

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THE fact that tuberculosis is prone to attack certain definite places in the body has often tempted anatomists to discuss the possibility that some structural peculiarity may favour the commoner forms of infection, and to speculate upon the route by which the infection reached its sites of election. Since the distribution of the disease has such a well-defined anatomical localisation, it is, perhaps, not unnatural that explanations should have been attempted, based upon the purely anatomical considerations, as to how these sites became invaded and why they are selected by the bacteria for their primary foci in the invasion of the body.

Such hypotheses as have been put forward by anatomists hitherto have not carried conviction, for they have been the outcome of attempts to devise a route for the bacillus upon the supposition that it entered the body with the inhaled air or by means of the blood stream. This is my primary reason for rejecting the explanations previously suggested by anatomists, but it is not the only one. Even supposing it were known for certain that the tubercle bacilli most commonly invade the body by the inhaled air or by the blood stream, the suggestions usually advanced to explain why it is that certain spots are peculiarly exposed to attack, while the rest of the body remains comparatively immune, are wholly unconvincing. Why tubercle attacks the apex of the lung does not seem to be explained by the inquiries into the relative degree of expansion of different parts of the lung, or by the investigation of the action of the bronchial cilia. Why tubercle not uncommonly attacks the base of the lung and the abdominal cavity in children, and why it has a selective action in its attack upon the various regions of the vertebral column in cases of caries of the spine, are other problems not solved by any inquiry into the relative expansibility of different parts of the lungs or the movements of the thoracic walls.

So far as I am aware, no anatomical explanation of the incidence of tubercular disease has yet been attempted in the light of the new knowledge which recent research has afforded of the mode of invasion effected by the tubercle bacilli. The work of Calmette and Guerin, of Vansteenberghe, Grysez, and Ravenal, and of Symmers and Whitla has shown, beyond all dispute, that there is a route for invasion provided for the bacillus by way of the alimentary canal. The experiments that have been performed upon animals to demonstrate this have proved, beyond all manner of doubt, that tubercle bacilli may reach the lungs from the lumen of the alimentary canal without leaving any trace of their passage through its walls. How far this route may be regarded as the normal one for the invasion of the human body is a question for the investigations of pathologists and clinicians to solve; but the certain knowledge that the tubercle bacillus can reach the lungs *viâ* the alimentary canal opens up a new field for the anatomist, and prompts an attempt to map out a pathway of infection. The common belief that nothing remains to be discovered in the gross anatomy of the human body is being refuted every day in the dissecting-room; nor is this field of investigation likely to become exhausted so long as pathology, medicine, and surgery are constantly adding new facts and new problems, the explanation or solution of which depends in any way upon the anatomical disposition of the parts of the body. The reinvestigation of the anatomy of the chest is not likely to yield barren results when a fact so fundamental as the possibility of the alimentary route of tubercle bacilli to the lungs is established beyond all doubt. Regarding these facts from a purely anatomical aspect, I have attempted to determine (*a*) a possible pathway for tubercular infection; (*b*) to show it to be a probable one; and (*c*) to demonstrate that, even though this investigation is in its initial stages, this route has been found to have been actually used for conveying infection to the apex of the lung in a case of pulmonary tuberculosis. I publish the facts that I have determined merely as a suggestion of the possibility of this route and as an appeal to those who have opportunities for a fuller investigation of the problems raised than is possible within the walls of the dissecting-room, to provide the data for the study of the anatomical distribution of tuberculous lesions.

The problems which forced themselves upon me in the course of my demonstrations on the anatomy of the chest were these: Why does spinal caries so commonly manifest itself in the lower and mid-dorsal regions; and why does phthisis, in the adult, so constantly show itself first above this level, and so very frequently in one definite spot? As to which is the actual vertebral body most commonly found to show the first signs of spinal caries there is not complete agreement, but that the region from the sixth dorsal vertebra to the second lumbar is the part of the spine within the limits of which the process starts appears to be generally accepted (Billroth, Hueter, Holmes, and others). (See Fig. 1.) Tubby gives the site of election as "the lower dorsal region or the junction of the dorsal and lumbar regions," and Adami says that "in tuberculosis of the vertebræ those from the seventh dorsal to the second lumbar are the ones usually involved."

With regard to apical phthisis, the site of election is universally agreed upon, and a spot "from one to two inches below the extreme apices" (Percy Kidd) seems to be the site where the disease is most usually detected. (See Fig. 2). Other problems also present themselves: Why, in children, does tubercular disease so commonly manifest itself as abdominal, or generalised tuberculosis; and why, when it attacks the lungs in children, is it not at all uncommon for it to start as a basal phthisis?

The consideration of these problems, and the facts determined by Whitla, Symmers, and others, demands a search for some structure, or system of structures, which might carry the infection from the alimentary canal to these parts, and which has, at the same time, an intimate anatomical relation to them; moreover, it must be a system which, at varying periods of life, shows such changes as would be likely to alter the route of infection.

The absorbent system, so far at least as we understand its plan, fulfils all these conditions. The relations of the lymphatics of the posterior mediastinum—the thoracic duct and right lymphatic duct—when compared with the common sites of tubercular disease, assume a new and startling significance; for, unless it is merely a striking coincidence, the facts point clearly to these lymphatics as the pathway of infection in pulmonary and spinal tuberculosis. The thoracic duct is most intimately related to the spinal column from the sixth dorsal vertebra to the second lumbar vertebra—i.e., *precisely those vertebræ, the bodies of which are most subject to tubercular infection.* (See Fig. 3.) The position of the first appearances of caries upon the bodies of the vertebræ is highly suggestive of an infection from some structure lying upon the front of the centra; and in addition is the fact that caries at times "commences from many centres, often situated on different vertebræ, and unconnected with each other" (Erichsen). The structure most intimately related to the lungs at the site of election of phthisis is the lymphatic channel passing upwards and forwards over the pleura to join the subclavian veins. In this situation the thoracic duct (or the right lymphatic duct) lies directly upon the pleura, and in more intimate anatomical relation to it than

FIG. 1. FIG 2. FIG. 3.

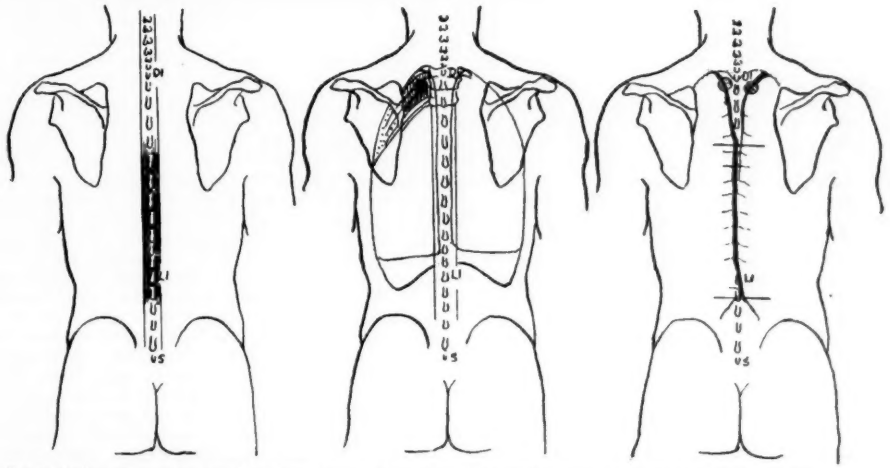


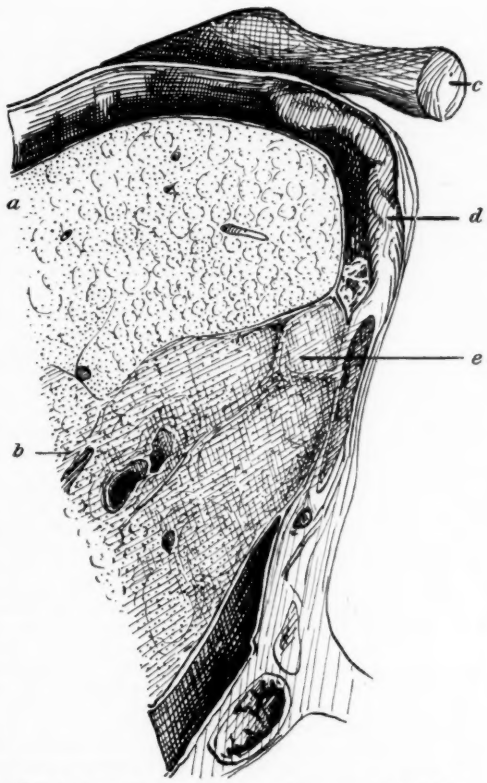
FIG. 1.—The posterior aspect of the trunk to show the site of election of tubercular disease in cases of caries of the spine.

FIG. 2.—The posterior aspect of the trunk to show the site of election of tubercular disease in cases of pulmonary phthisis. (After Percy Kidd. Allbutt's and Rolleston's "System of Medicine.") The area is indicated on the left side only, but it must be remembered that the corresponding region on the right side (see Fig. 3) is attacked at least as often, and according to many authors even more frequently—possibly because the smaller right duct is more liable to occlusion than the left.

FIG. 3.—The posterior aspect of the trunk to show the position of the thoracic and right lymphatic ducts, and the coincidence of their situation with that of the sites of election of tubercular disease shown in Fig. 1 and Fig. 2.

any other structure in the thorax or neck. So intimate is this relation that the easiest way to find the ducts is to remove the lung from the pleural cavity, and then to look for them through the pleura at the site of election of phthisis. The right lymphatic duct is a larger channel than is at times supposed, and it carries all the lymph from the right side of the diaphragm (and probably the liver) and from the right side of the thorax. More than this, it is reinforced by channels crossing the vertebral column from the left duct. The existence of these channels was clearly shown by the mercurial injections made by anatomists of a former generation, and by studying the effects of a stoppage of the lymph flow in the (left) thoracic duct: (*a*) experimentally, by ligature; (*b*) pathologically; or (*c*) experimentally, by tying all the veins into which its contents might be poured. When a surgeon cuts the thoracic duct and ligatures it the patient may exhibit no ill effects; but this is not necessarily due to the fact that the openings of the left duct are multiple, for the far older experiments of the Hunterian epoch showed that the left duct and all its openings could be ligatured, and yet the lymph-return persist unimpaired. Another constituent of the lymph channels which run forwards over the pleura is the series of vessels from the œsophagus itself, and their relation to the apex of the lung is also intimate. So much for the anatomical possibility that tubercle bacilli could find a ready path to their sites of election by the thoracic ducts. It remains to inquire if there is any evidence that tuberculosis of the thoracic duct occurs, and if possibly it might be the primary seat of disease in the body.

FIG. 4.



Sketch of the dome of the pleura and apex of the left lung from a case of phthisis. The specimen is seen from behind and the lung is shown in section. The tubercular disease is seen to have its apparent origin at the point of adhesion of the diseased thoracic duct, where the pulmonary affection is most intense and from which the disease has obviously spread. *a*, Area of lung at extreme apex, practically normal. *b*, Area of lung showing disease, but less advanced than in pleural area. *c*, First rib. *d*, Diseased thoracic duct seen through pleura but cut obliquely at the pointing-line *c*. *e*, Maximum intensity of disease of lung at the point of adhesion of diseased duct.

In 1790 Cruickshank ("Anatomy of the Absorbing Vessels") mentions that "Mr. Cheston of Gloucester, some years ago" showed him a thoracic duct that was blocked by a solid substance. In 1789 Astley Cooper went fully into the question. In 1827 Gendrin turned his attention to disease of the duct, and in 1882 Stilling carried on the investigations begun by Ponfick and described tuberculosis of the thoracic duct minutely. He described tubercles and tuberculous ulcers of the lumen of the duct "especially on the valves"; and he met with this condition in 5 among 18 subjects dead of "acute tuberculosis," and he adds that it is mostly found in "elderly people." In an editorial comment on this work in THE LANCET of June 10th, 1882, it is said that "old handbooks of medicine often allude to the occlusion of the duct by caseous material, and to its inflammation." It may therefore be said that tuberculosis of the thoracic duct is certainly a definitely established condition, and that it is associated with tuberculosis in other parts of the body; but I do not know of any evidence to show that it has been considered as primary, or as anything other than a pathological curiosity.

It is a condition that would be very easily overlooked in the ordinary routine of post-mortem examination, for the tearing away of the apex of the lung from the dome of the pleura, and merely noting the adhesions broken down in the process, would certainly prevent its recognition, even if the disease were well established. As the result of the examination of a case of apical phthisis, which I have dissected in the anatomical department here, it is possible to go a stage further, and to state that the tubercular disease in the lung appeared to have its seat of origin precisely at the point of contact of a diseased thoracic duct. In this case the limitation of the disease, the firm adhesion of diseased lung, diseased pleura, and diseased duct were most suggestive of an invasion of the lung from a primarily infected duct. (See Fig. 4.) From such an isolated case it is unsafe to assume more than that apical phthisis *may* be associated with tuberculosis of the thoracic duct, and have its seat of maximum intensity at the point where the diseased duct is adherent. If such a mode of infection of the lung is in any way common it would bear out the oft-repeated observation that an attack of pleurisy is often the first premonitory symptom of phthisis. That the pleurisy is not primary in such cases is the general opinion, yet Adami states that, "exceptionally, tuberculosis of the pleura is met with as a primary lesion, without discoverable disease elsewhere" ("Principles of Pathology," p. 330). The association needs to be sought for more widely, and early cases require careful investigation. If the suggestion of the causal relationship of tubercular disease of the thoracic (or right lymphatic) duct and phthisis, as put forward here, should prove to be unfounded, it must be considered an extraordinary coincidence that in the only case of early phthisis that I have had an opportunity of examining since the possibility of this mode of infection was suggested to me by purely anatomical considerations a tubercular thoracic duct should have been found secondarily adhering to the pleura and lung, and so infecting them. (Fig. 4.) In the cases of caries of the spine which come to post-mortem examination it would be of the greatest interest to know the condition of the thoracic duct. An early case of Pott's disease, if carefully dissected, might be expected to furnish some evidence of disease in the structures lying in contact with the diseased bone.

The question of the different sites of election for tubercular disease at different periods of life is one of great interest and one which would probably receive a readier explanation were our knowledge of the lymphatic system more complete. The older anatomists knew well that with advancing age the lymphatic system became increasingly difficult to inject, and that there was a closing down of the system in adult life; Ruysch went so far as to assert that the lymphatic glands, and with them the lymphatics, disappeared from the mesentery in old people. Cruickshank declared that "it cannot be denied, the glands of the mesentery are exceedingly small in old people"; but he cites Haller as having seen the thoracic duct full of chyle "in those who had passed the 70th year of their age." In the case of other mammals our knowledge is more complete. The experiments of Vansteenberghe and Grysez demonstrated that while particles of China ink, absorbed from the stomach, reached the lungs of adult guinea-pigs, they were filtered off by, and retained in, the mesenteric glands of young animals. Symmers and Whitla repeated these experiments and obtained a like result, but they add, "the carbon had also reached the thorax through the lymph channels of the diaphragm, which was rendered jet black throughout its substance" in young guinea-pigs.

In the absence of more definite knowledge concerning the age changes of the human lymphatic system these facts are only to be regarded as suggestive; but so far as they are capable of being interpreted they would appear to point to the fact that with increasing age the abdominal lymphatics become more constricted, and the lymph circulation becomes more centred on the thoracic ducts. If some such process did in fact take place, it would offer a ready explanation for the different sites of tuberculous infection in childhood and in adult life. If the mesenteric lymphatics most readily carry China ink (and tubercle. bacilli) in children, the advent of tuberculous peritonitis is not difficult of explanation; and if the lymphatics of the diaphragm readily carry infection to the thorax in children, then basal phthisis is easily explained.

Evidence of some such change would appear to be seen in the waning of lymphoid structures when the processes of growth have been carried out; for in the adult an atrophy of lymphoid tissues, and probably of lymph channels, takes place. At the period of life when bodily growth is complete it is not impossible that, with the atrophy of lymphatic structures, the lymph stream becomes more dependent upon the thoracic ducts; and this is the time of life when apical phthisis is most prone to occur. If the route of the thoracic duct should chance to be that by which the tubercle bacilli reach the lung in phthisis, and the spine in Pott's disease, it becomes a matter of importance to see if there is any symptom that might seem to point to an involvement of the duct. Of primary disease of the duct nothing appears to be known. "It is, as a rule, quite impossible to determine during life that the thoracic duct is diseased. This might be suspected if, along with some other known cause which might lead to obstruction of the tube, the patient became extremely emaciated, anæmic, and weak, without other obvious reason to account for the symptoms" (Roberts). These symptoms are well marked in phthisis, even in early cases, and adequate causes to account for them are not usually apparent. "The explanation of the wasting is not always obvious. There is often loss of appetite, and especially distaste for fat in every form" (Fagge and Pye-Smith). Such symptoms—and especially the peculiar distaste for fat—are suggestive of the possibility that the duct is involved as the primary seat of the disease.

ON RUPTURE OF THE TUNICA VAGINALIS IN HYDROCELES.[1]

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IT would appear that to Bertrandi is due the honour of having first recognised the possibility of rupture of the tunica vaginalis in hydroceles. Pott also described a case where traumatic rupture had resulted in spontaneous cure, and it is evident from his writings that Hunter fully recognised the fact that rupture might occur. But except for the publication of occasional cases of this accident there has been but little notice taken of it in England or Germany, most of the literature of the subject being derived from Switzerland and France. So far about 50 cases have been recorded, but many of the earlier records, particularly of those treated by conservative methods, are exceedingly scanty. Nevertheless, it would appear that the condition can hardly be as rare as might be supposed, and that not a few cases pass unnoticed, for the three herein described have come under the notice of the writer in less than four years at a single hospital.

Clinical History.

A case of rupture occurring in an acute hydrocele has been described by Saint-Martin; but, with this exception, in practically every recorded case the hydrocele had existed for some months, or more often for several years. The history of repeated tappings given in the first two of my cases is by no means the rule, and I have only found it mentioned in three other cases, all of which, strange to say, were recorded by English observers. As a rule, there appear to be no premonitory symptoms, nor is there at all frequently rapid enlargement of the hydrocele during the few weeks preceding rupture, as Reverdin thought. In one or two cases the rupture has taken place during sleep, or has passed unnoticed by the patient, as in my second case, but usually it has been accompanied by a feeling of something tearing or giving way. Pain is a much more variable symptom, for while usually severe and described as stabbing or cutting, it is occasionally entirely absent at first. The pain, when present, lasts a variable time and is but rarely accompanied by faintness or any general symptoms; indeed, in not a few cases the patient has gone on with his work a

[1] A paper read before the Surgical Section of the Royal Society of Medicine on March 8th, 1910.

few minutes after the occurrence of the rupture and only sought medical advice after some hours on account of continuous or increasing discomfort.

The immediate effect of the rupture noticed by the patient is usually that the swelling of his scrotum has become larger and softer, and an examination during the first 12 hours generally reveals a more or less uniform œdema, absolutely confined to the affected side of the scrotum, which appears to have been translucent in most of the cases in which this point was investigated. The position of the testicle can generally be made out by palpation at this stage. After the first few hours the œdema slowly spreads to the penis, especially the prepuce, the opposite side of the scrotum, and even at times to the lower part of the anterior abdominal wall and perineum. More or less discolouration of the scrotal tissues from effused blood is generally to be seen within 12 or 24 hours of the rupture, and where a vessel of any size has been torn a subserous or subcutaneous hæmatoma will be produced. The scrotum is usually very tender when touched, and there is sometimes a recrudescence of the pain, which lasts two or three days and may be so severe as to compel the patient to keep his bed. Bailly regards the persistence or recurrence of pain as a sure sign of the formation of a hæmatocele and the consequent necessity of operative interference.

If untreated, the œdema generally begins to subside after a few days, and has usually entirely disappeared in a fortnight or three weeks, while the hydrocele, which has either become much smaller or has disappeared altogether, in most cases slowly refills. It is probable that cases such as those described by Velpeau, in which the patient goes to bed with a well-marked hydrocele and wakes up next morning without any scrotal swelling at all, are to be explained by rupture without hæmorrhage and rapid absorption of the effused fluid. In a few cases after rupture a soft area has been noted in some part of the scrotum, in the base of which an opening admitting one or two fingers could be felt through the skin. The absorption of the fluid is usually accompanied by slight fever and general malaise, and occasionally a feeling of sickness. In a few cases polyuria and even diarrhœa have been noted. Complications are extremely rare, but cases of gangrene and even fatal septicæmia have been reported.

Pathology.

In considering the pathology of this affection one has first of all to inquire *why* the tunica vaginalis ruptures. In most of the recorded cases the traumatism producing the rupture, if present at all, has been of a quite insignificant character, while we know that the normal tunica vaginalis is a membrane of some strength and capable of resisting considerable fluid pressure. This is shown by the experiments of Saint-Martin and Delore. The former observer, by injecting fluid under pressure into the tunica vaginalis of post-mortem subjects, found that one atmosphere was the least pressure under which he ever obtained rupture, while in 7 cases out of 14 he failed to obtain rupture at all. In each of the seven cases in which rupture occurred it was situated in the upper part of the tunica vaginalis. Delore, however, found the rupture almost as frequent below as above. When a hydrocele has formed, the tunica vaginalis has still considerable strength, and Mauclaire and Vinsonneau state that they have tried to produce rupture by pressure on the hydroceles of patients under chloroform, immediately before performing radical cure, but have failed. It seems clear, therefore, that, except under the influence of relatively severe traumatism, to undergo rupture the tunica vaginalis must be in some way changed. In what exactly this change consists there is some difference of opinion, but before mentioning the two principal views on the subject it will be convenient to allude briefly to the anatomy of the part.

As is well known, the parietal portion of the tunica vaginalis is covered by several layers of tissue. Beneath the skin is the dartos, a thin, reddish membrane of unstriped muscular and elastic fibres, consisting, according to Barrois, of two separate layers, the outer surrounding both testicles, the inner and stronger forming a separate investment for each. In the middle line there exists a potential space, bounded on each side by the deep layer of dartos, and into this space pathological effusions occasionally take place. Next comes a thin layer of loose cellular tissue, called by the French the fascia of Cooper. On injecting fluid into the potential space formed by this loose tissue, it is found to be completely closed on the side of the thigh, but to communicate freely with the subcutaneous tissue of the perineum, penis, and anterior abdominal wall. Here pathological effusions collect much more frequently. Beneath this, again, is a strong fibro-muscular tunic, consisting of three layers more or less easily separable. It may be regarded as a fibro-muscular bag enclosing the testicle and cord, open only at the level of the internal abdominal ring. The lower portion enclosing the testis is by far the stronger. Separating the tunica vaginalis from this fibro-muscular coat is a layer of subperitoneal cellular tissue, in which blood-vessels, mainly branches of the funicular artery, ramify. This tissue is much better developed above than below; indeed, in its lower fourth the tunica vaginalis becomes firmly united to the fibro-muscular layer. Pathological effusions are frequent in this situation. According to Béraud, the tunica vaginalis often presents finger-like diverticula, one or two centimetres long, which end blindly sometimes after piercing the fibro-muscular tunic. While they may exist in any part of the tunica vaginalis they are said to be most common above. Although their existence is not admitted by all anatomists, they are regarded by Saint-Martin as the essential cause of rupture in hydroceles. Burdet and Delore, on the contrary, think that the cause should rather be sought in the softening and degeneration of the tunica vaginalis and its coverings. In comparing these two theories it will be well to inquire into the usual seat of rupture and the condition of the tunica vaginalis found at operation.

Saint-Martin, writing in 1883, stated that according to his observations the rupture most commonly took place in the antero-superior part of the tunica vaginalis. Reverdin, writing in the same year, regarded the anterior and central region as the most common seat. Since this time many cases have been recorded, and as a large percentage of these have been subjected to operative interference the exact locality of the rupture has been determined with much greater exactitude than formerly, and has been shown to have been situated at almost all points in the tunica vaginalis in different cases. From an examination of the records of a number of cases it would seem that the rupture is slightly more frequent on the anterior aspect than on the posterior, a fact perhaps explained by the adhesion of the tunica vaginalis posteriorly to the scrotum noted several times. Some French authors seem to regard the point of application of the traumatism in traumatic cases as important in determining the situation of the rupture, but it would appear contrary to the laws of fluid pressure to expect this. We must conclude that the tunica vaginalis ruptures at its weakest point, which may be anywhere, and by no means exclusively in the juxta-funicular portion, as Saint-Martin thought.

In the second place, what is the condition of the tunica vaginalis? In nearly every case in which the tunica vaginalis has been carefully examined it has been found diseased. The membrane itself is usually thickened and vascular, and may present on its inner aspect flattened plaques of a yellowish colour, resembling those of atheroma, and sometimes calcified or even ossified. In the substance of the membrane may be areas of fatty degeneration, and occasionally false membranes are found on its inner surface. Histological examination of sections of the thickened tunica vaginalis after rupture have shown it to be composed of fibrous connective tissue, so thick and dense as to be completely deprived of cellular elements. Reverdin, who describes two cases of comparatively short duration before rupture, notes that even in these there were lesions in the tunica vaginalis, which no one would have expected, and the conditions found at operation in my third case are entirely in accordance with this observation. No doubt where the applied traumatism is sufficiently severe, rupture may occasionally occur in tunicæ vaginales that are but little changed, and it seems probable that the cases recorded by Stitelet were mainly of this nature. Even in these cases, however, a "washed out" appearance of the tunica vaginalis is described. Thickening of the fibro-muscular covering has also been noted in a few cases, but whatever changes may take place in the tunica vaginalis and the subjacent fibrous tunic the two membranes are always easily separable from one another.

It would appear, therefore, that the tunica vaginalis gives

way because it is diseased, and that the rupture may occur at any point on its surface.

We must next inquire what it is that gives way when a rupture occurs. Is it the tunica vaginalis only, or does the fibrous layer rupture at the same time also? Reverdin was of opinion that both coats generally gave way, but Burdet considered that it was the tunica vaginalis only which usually ruptured. Delore's experiments, in which fluid under pressure was injected into the vaginal sac, seem rather to favour the latter view, for in one case only out of nine was the fibrous layer ruptured; but little reliance can be placed on the results of these experiments, since healthy tissues only were involved in them. Certainly, in some of the more recent and carefully described cases, it is the tunica vaginalis only which has given way, but there can be no doubt that both varieties occur, so that the effusion of the serous fluid and blood may take place either into the subserous tissue, or into the loose cellular tissue immediately beneath the dartos, or into both.

Poncet of Lyons thinks it is possible to distinguish clinically between these two varieties. He says that a rapidly spreading œdema, with considerable ecchymosis extending on to the abdominal wall, indicates a rupture of the fibrous tunic, while a limited swelling, accompanied by slight ecchymosis, will be in favour of a rupture of the tunica vaginalis only. This will be more certain if the effusion is prolonged along the cord and forms a tumour of some size. In ten days or a fortnight after the rupture the greater part of the effused fluid will have been absorbed, and if there has been much bleeding it is then quite easy to distinguish a vaginal from an extra-vaginal hæmatocele, for the former surrounds and obscures the testicle, while the latter forms a swelling to one or other side of it. When the scrotal skin is adherent to the tumour it is strong evidence that the hæmatocele is situated external to the fibro-muscular coat. The hæmatocele thus formed may occasionally be absorbed, but it is much more usual for the scrotal tissues to become thickened around and for the swelling to persist indefinitely. Sometimes, in cases of repeated rupture without much hæmorrhage, an intra-parietal pocket is formed, which remains connected with the cavity of the hydrocele or may be gradually separated from it.

The rupture itself is usually slit-like, with sharp-cut or jagged edges. As in the cases here described, it is often longer than one would have anticipated. The fluid found on operation in the sac of the hydrocele is usually blood-stained and contains a variable amount of blood clot. The pouches resulting from the rupture are also filled with clot. The older French observers attributed the hæmorrhage to rupture of vessels in the cellular tissue, resulting from excessive traction as this tissue became distended with effused hydrocele fluid. This may be true in part, but there can be no doubt that blood is also derived from the vessels divided by the rupture of the tunica vaginalis or fibrous coat, the latter being often very vascular. Walther describes a case in which, on the evacuation of the clots, a profuse discharge of blood poured out from an artery in the torn edge of the tunica vaginalis. When the case is left to nature the tear in the tunica vaginalis, as a rule, slowly heals by the formation of a fibrous scar and the hydrocele refills.

Causes.

The exciting causes of rupture may be traumatism, as by a knock or blow, which presses the distended tunica vaginalis against the pubes, or pressure, as when the hydrocele becomes squeezed between the thighs by the contraction of the adductor muscles. There is also considerable evidence to show that muscular effort, such as occurs during a fall, a cough, defæcation, or a fit of anger, may produce the same effect. While Kocher would deny the possibility of this, Le Dran maintains it strongly. He believes that either by direct action of the lower fibres of the internal oblique on the vessels of the cord, or by increased intra-abdominal pressure, the tension in the blood-vessels of the tunica vaginalis is raised to such an extent that they give way, and the consequent increase of fluid in the tunica vaginalis is sufficient to determine its rupture. Baseil, on the other hand, believes the contraction of the cremaster to be the chief causative factor in these cases. But, besides these, so-called spontaneous cases undoubtedly occur, where rupture takes place without any apparent cause. In Velpeau's case a rupture occurred while the patient was asleep, and in a still more curious case described by Reverdin the patient felt a sharp pain, followed by all the symptoms of rupture, while seated quietly in a chair. The existence of spontaneous cases is of great interest and points strongly to some degenerative condition of the wall of the sac as the essential cause of rupture. In a few cases of this nature a rapid increase in the size of swelling has been noticed before the rupture, but this is, however, rare. It is probable that muscular effort is the commonest exciting cause, and that spontaneous ruptures are the rarest; but it is necessary to remember that most of the recorded cases occurred in hospital patients, who, for the most part, work hard, and are, therefore, most subject to traumatism and muscular strain. If, as seems probable, the true cause of rupture is degeneration of the wall of the hydrocele, in the absence of traumatism this degeneration may advance so far that rupture occurs after very slight violence or even spontaneously.

Diagnosis.

There is usually but little difficulty in recognising this condition if a reliable history is obtainable. It seemed obvious from the first in my three cases. Elephantiasis scroti and extravasation of urine are said to be the conditions for which it has been mistaken, and its resemblance to the latter is certainly close at first sight. Where rupture of the tunica vaginalis occurs alone, and there is but little scrotal effusion, the condition may closely resemble a hæmatocele; indeed, some think that not a few cases diagnosed as vaginal or parietal hæmatoceles arise in this manner. It is also necessary to remember that a vaginal hæmatocele may itself rupture, and in the absence of a reliable history and of translucency after the accident the two conditions will be very difficult to distinguish. When the rupture comes on acutely with fever and sickness, a strangulated hernia may be closely simulated. But the freedom of the hernial rings will at once make the diagnosis clear. Erysipelas will also have to be considered in such cases, but we must recollect that erysipelas may occasionally occur as a complication of rupture.

Treatment.

The first recorded case of ruptured hydrocele was published in 1757, and for many years very little in the way of treatment was recommended. But palliative measures rarely result in a permanent cure, as is seen by the records of several cases; for example, a patient of Serre, who repeatedly ruptured his own hydrocele by pressure when it became uncomfortably large, thereby obtaining temporary relief. Only two or three cases of cure without operation have been recorded years after rupture, nor should we anticipate that a simple rupture of a diseased organ would make it healthy. Injection of coagulants is likewise uncertain. While it has sufficed to cure in some cases, it has been followed by suppuration and sloughing in others. Where antiseptic precautions can be taken, the best treatment in most cases is to cut down on the hydrocele and perform a radical cure, clearing out all the blood clot and removing the greater part of the parietal portion of the tunica vaginalis. Where, as sometimes happens, firm adhesions exist posteriorly, binding the tunica vaginalis to the scrotum, it is probably best to follow Reverdin's advice, and leave this area untouched. In old men, too, where the testicle has ceased to be a functional organ, castration may be the simpler course. The only question is as to the best time to operate. When the œdema and infiltration are considerable, as in ruptures beneath the dartos, Poncet of Lyons recommends waiting a few days or a week, till most of the fluid is absorbed. He says the danger of suppuration, which is so liable to occur with large effusions of serum and blood, is thereby lessened. But where there is great pain from distension, something must be done to relieve the patient, and Bailly suggests that aseptic puncture of the hæmatocele is desirable as a temporary measure. With limited effusions there can be no reason to postpone operation.

In conclusion, I should like to thank Mr. J. Bland-Sutton for permission to publish the following cases, upon which, as well as upon those referred to in the subsequent bibliography, the paper is based.

CASE 1.—A man, aged 52 years, a painter, had suffered from a hydrocele of the left tunica vaginalis for five years. During this time he had been accustomed to have it tapped about every six months, the last occasion being in May, 1905. As more than the usual time between the tappings had elapsed, and as the hydrocele, though painless, gave trouble through its size and weight, he had determined on the morrow to seek relief. On March 9th, 1906, at about 10.30 A.M., the man, who

was out of work at the time, was walking down Charing Cross-road, and, seeing a sixpence, bent down quickly to pick it up. In doing this he is quite sure that he did not knock his hydrocele, but he thinks that possibly he may have pressed on it as he stooped down. He immediately experienced a sensation of something tearing or giving way, and felt a sharp pain in the left side of his scrotum. He felt rather giddy for a few minutes, but as soon as he recovered he felt for his hydrocele, which before had been smooth, firm, elongated from above down, and confined to the left side of his scrotum, and noticed that it had become quite soft. He walked about for a time; but as the pain, which had never left him since the accident, increased in severity, and as he began to feel generally ill, he came to the Middlesex Hospital at about a quarter to 12.

When seen in the out-patient room about 2.30 P.M. his condition was as follows. The left side of the scrotum was swollen to the size of a large orange. There was considerable superficial œdema, so that the skin appeared irregular on the surface, like the skin of an orange, and pitted readily. The œdema was entirely confined to the left side of the scrotum, and there was no discolouration or sign of effused blood anywhere. The whole scrotum was soft, and although on account of the tenderness the outline of the left testis could not be made out, it was quite evident that the scrotum contained no tense swelling of any appreciable size. Over the left external abdominal ring was a pad of fat. The penis was quite normal.

The next day slightly increased swelling of the left side of the scrotum was noticed, as well as some œdema of the right. There was also some ecchymosis in the skin, especially on the left side, and both œdema and discolouration of the penis, most marked at the preputial fold. Mr. Bland-Sutton operated the same afternoon. An incision about 3 inches long was made over the anterior aspect of the left side of the scrotum. The skin and dartos were œdematous and contained a good deal of effused blood of a dark colour. When the tunica vaginalis was incised it was found to contain about an ounce of blood-stained fluid. On its posterior aspect, behind and outside the testes, was a vertical tear some 2 inches or 2½ inches long and almost straight. The edges of this tear appeared clean-cut and not jagged, and beyond it was a cavity in the cellular tissue of the scrotum, containing some amount of clotted blood. This was cleared away and a radical cure performed. The greater part of the parietal layer of the tunica vaginalis was removed and the testicle invaginated into the remainder, which was secured around it by two stitches. A drainage tube was inserted, and on account of the œdema two stitches only were used to unite the skin. The œdema rapidly became less, and on the fourth day after operation had so far decreased that five extra superficial stitches were added. The wound healed slowly without suppuration, and the patient was discharged on April 4th. Unfortunately, no microscopic examination of the tunica vaginalis was made in this case.[2]

CASE 2.—The second case is that of a journeyman baker, 43 years of age. Except that he had had a left-side hydrocele for five years, there was nothing noteworthy in his previous history. The man had a sallow, unhealthy appearance, the result of his employment, and his arteries were rather thickened. He stated that he had never had syphilis, and that he was a moderate drinker, but occasionally, as he expressed it, "went on the spree." He had had his hydrocele tapped in June, 1906, when 22 ounces of fluid were removed, and again in March, 1907, when 20 ounces were drawn off. The hydrocele had again filled and extended as high as the internal abdominal ring, the swelling being most marked above. It was beginning to cause him inconvenience by its size, and was slightly tender, so that he had made up his mind to come to the hospital in a few days time to have it tapped again. He had no recollection of ever knocking the hydrocele, but on April 11th, 1908, he noticed that the swelling had become softer and more tender than usual. On April 12th this condition became more noticeable, and the chief swelling being in the lower part of the scrotum instead of above as previously. To quote the man's own words, his hydrocele "had dropped all flabby like a busted football." There was also discolouration of the skin on both sides of the scrotum.

On April 13th the pain became so severe that the man was unable to continue at his work, and he came to the Middlesex Hospital. The scrotum was then found to be œdematous, especially on the left side. The right testicle could be felt, but the left could not be made out, although testicular sensation was obtained on both sides. Neither fluctuation nor translucency was present. The skin of the scrotum was discoloured on both sides, but especially on the left. The next day (April 14th) all œdema on the right side of the scrotum had disappeared. The left testis could not be made out, but fluctuation was obtained, and the fluid could be displaced from the lower part of the scrotum to the external abdominal ring.

On April 23rd the patient was admitted to the hospital. Practically all œdema and discolouration of the skin of the scrotum had disappeared. The hydrocele felt tenser than before. On April 29th, through the kindness of Mr. Bland-Sutton, I performed a radical cure of the hydrocele. An incision 2 inches long was made over the upper part of the left side of the scrotum. A thick-walled hydrocele sac was opened. The contents of the sac were clear serous fluid, and the inner surface of the sac was smooth generally, but nodular where it covered the testis. The wall of the sac was everywhere thick, and consisted of a double membrane. To the inner side of this sac was a second nearly as large as the first. It was subcutaneous, and lined by a thin serous membrane. It contained blood-stained fluid and had ruptured posteriorly. The septum between the two sacs was thick and dense, but at one point it was much thinner and bulged toward the thin-walled sac. As much as possible of both sacs was dissected away, and a running stitch applied round the cut edge of the tunica vaginalis where it was reflected on to the testis to limit hæmorrhage. The serous surface of the testis was then wiped with raw carbolic and the wound closed.

A microscopic examination of the thickened tunica vaginalis showed it to consist of dense fibrous tissue with thick-walled arteries. The fibrous tissue was moderately cellular and contained elongated cells, with abundant protoplasm, and a small round nucleus. It is quite clear that in the above case it was the thin-walled sac and not the tunica vaginalis that had ruptured. It would seem probable that this sac was secondary and due either to a previous rupture of the tunica vaginalis and the fibro-muscular coat, or to a leakage after tapping. It may be that the thin bulging area noted in the intervening wall between the two sacs represented a previous communication between them.

[2] This case has been previously published in the Archives of the Middlesex Hospital.

CASE 3.—On April 3rd, 1909, a shop assistant, aged 24 years, was admitted to the Middlesex Hospital for ruptured hydrocele. There was nothing special in his family or previous histories. About a year before admission he noticed a swelling in the left side of his scrotum. It appeared spontaneously and steadily increased in size. In about three months, though there was no pain, it became so inconveniently large that he consulted a medical man, who pronounced it a hydrocele and tapped it. For two months all went well, but after this the hydrocele began to fill up again, and after attaining the size of an orange remained stationary. On April 3rd, while leaning over a billiard table, the young man knocked his scrotum. The blow was quite slight, but immediately he felt an acute pain, which, as he expressed it, "doubled him up." In a few minutes the pain became less acute, so that he was able to finish his game, but a dull aching followed. He examined his scrotum, and finding it swollen and discoloured came at once to the hospital and was admitted.

On admission, the scrotum was seen to be swollen to the size of a cocoanut and discoloured by extravasated blood. The discolouration was general, though most marked below, but the swelling was almost confined to the left side. The scrotum was very tender. The swelling was tense and fluctuation was obtained, but it was not translucent. The testicle could not be felt. There was some œdema of the skin of the penis and prepuce, which were slightly discoloured.

On April 5th Mr. Bland-Sutton decided to operate. A vertical incision 3 inches long was made downward from a point a little below the left external abdominal ring. Much blood clot was found in the scrotal tissues. The tunica vaginalis was opened by deepening the incision, and found to contain blood-stained fluid and clot. When this was removed a vertical tear some 2 inches long was seen extending through the parietal layer of the tunica vaginalis on the outer side. A portion of the thickened tunica vaginalis was removed and the remainder everted and sutured behind the testis. A drainage-tube was inserted, and the wound was closed. The man made an uninterrupted recovery. On April 21st he left the hospital, the wound being completely healed.

Microscopic examination of portions of the thickened tunica vaginalis removed at operation two days after the rupture showed it to consist of dense fibrous tissue. Between the fibres were a fair proportion of elongated fibroblasts and small round cells. The rather numerous blood-vessels were in no way thickened, but were immediately surrounded by a large number of small round cells. It is interesting to note that the thickening of the tunica vaginalis was by no means uniform, being much more marked in some parts of the membrane than in others.

Abstract.—Rupture of the tunica vaginalis in hydroceles is probably a more common accident than is usually supposed. It may occur as the result of traumatism or muscular action or may occasionally take place spontaneously. In practically all cases the tunica vaginalis which gives way is the seat of pathological changes, usually of the nature of an irregular fibrous thickening. The rupture may occur at any point and usually involves the serous layer only, but occasionally the fibrous tunic is torn also. The accident only occasionally results in cure, and more usually the hydrocele slowly refills or a hæmatocele is produced. The best treatment is radical cure of the hydrocele, which is most advantageously performed after the greater part of the effused fluid has been absorbed.

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New Cavendish-street, W.

PRESENTATIONS TO MEDICAL MEN.—Mr. William Monckton, M.R.C.S. Eng., L.M., L.R.C.P. Edin., has been presented with a cheque for 100 guineas, an album suitably inscribed and containing sketches of Portishead, Somerset, together with an illuminated address with a list of about 400 subscribers, as a mark of respect and esteem, on the occasion of his leaving Portishead.—At a supper held at Redruth, Cornwall, on March 16th the members of the Dolcoath division of the St. John Ambulance Association presented Mr. Josiah Telfer Thomas, L.R.C.P. Lond., M.R.C.S. Eng., J.P., with a solid silver inkstand, suitably inscribed, "in grateful recognition of his services as honorary surgeon."

WASSERMANN'S REACTION FROM A PRACTICAL POINT OF VIEW.

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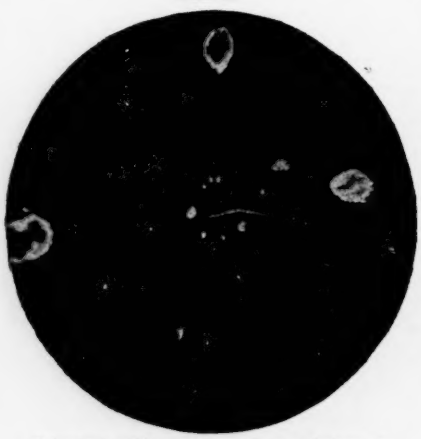
MUCH has already been written concerning the theory of Wassermann's reaction, but its practical bearing has received too little consideration. It is unnecessary for a busy medical man to burden himself with the theory of a test which can only be carried out in a well-equipped laboratory, with a menagerie attached. However the reaction may be simplified, it can never form a sport for the consulting-room—letting the patient have an answer while he waits. The more recent modifications of subsequent workers have one and all by yielding variant and uncertain results unfortunately seemed now and again to deduct from the value of this important advance in syphilology. Such discredit, however, is not justly to be ascribed to the technique originally introduced by Wassermann, but no sensible improvement upon that method has so far established itself in the favour of authoritative workers, and at the present moment, therefore, it is a fact that Wassermann's original test of the year 1906 still holds the field as the approved as well as the most reliable of all. No doubt Wassermann's original method entails more labour, since every ingredient of the reaction is used in a known quantity. It, however, gives results, both qualitative and quantitative, which cannot be attained by any of the modifications. The reaction itself is empirical, therefore every care should be taken to obviate any source of error. The rational interpretation of the scientific meaning of the reaction will not be arrived at by taking any of the "short cuts" proposed in these modifications; it will rather be reached by trying to ascertain (1) why an extract of a guinea-pig's heart (antigen) should have the power of binding the complement with a syphilitic serum, and (2) why every case of florid syphilis does not give a positive reaction. The answer to the former will no doubt be given us by the chemists, while it is more than likely that the reaction is a chemical one. Concerning the latter we shall have something to say below. Be the reaction, as carried out by Wassermann, empirical as it may, it is nevertheless one of the greatest advances of modern medicine, the name of Wassermann being to syphilis what that of Widal is to enteric fever.

FIG. 1.



Spirochæta pallida. × 500. From a photograph kindly lent by Dr. Mucha.

Take first of all the *primary stage of syphilis*. In no stage of the disease is diagnosis so important. Seen early, a sore on the penis may baffle even the elect. One or other of two courses is usually adopted. Either the patient is given mercury and so labelled as a syphilitic, with a three years' treatment to look forward to and the constant thought of suffering from a disease which is popularly regarded as incurable—the word syphilis, to the man in the street, has more foreboding than is realised by the man in the hospital; or the patient must wait until the whole system is infected and until there are rash, sore-throat, and evening headache, that is to say, until secondaries are obvious enough to be diagnosed by a layman.

The use of Wassermann's reaction is limited. Taking all periods of the primary stage a positive result is not obtained in more than 40 per cent. of cases.

A positive diagnosis can be obtained only by finding the spirochæta pallida. The secretion of a sore should be examined by means of the "dark ground illumination." No staining is required, and the spirochæta can be seen in the living state. The method is perfectly simple, and can be carried out in a few minutes while the patient waits. The secretion from a primary sore hardly ever fails to reveal the spirochæta pallida, and this organism is not found in other sores.

The "dark ground illumination" is obtained by using a condenser which allows no rays of light to reach the eye of the observer, except those reflected by certain objects, such as the spirochæta, under observation. The picture represented on the slide is one not easily to be forgotten, since the spirochæta is seen wriggling its corkscrew-like form, which is brightly illuminated, across the dark non-transparent background. The question of distinguishing the specific spirochæta from the *S. refringens* need not arise, since the latter is rare in the secretion of a chancre, and does not occur in other venereal diseases until a stage so late that a wrong clinical diagnosis is impossible. Should it be required to discriminate between the two by the above method, it is only necessary to remember that the *S. refringens* is thicker, has fewer turns to its corkscrew, is usually of a yellowish tint, and, when moving, moves along its whole length; while, on the other hand, the *S. pallida* is finer, has more turns, tapers at both ends, appears dead white, and, when moving, a part may remain stationary while the rest is in motion, giving one the idea that its corkscrew is kinked.

An even simpler and equally reliable method—one requiring no special apparatus—of demonstrating the spirochæta is by means of Chinese ink (Burri's method). A platinum loopful of secretion from a sore is placed upon a slide, surrounded by seven or eight loopfuls of distilled water and the same quantity of a solution of Chinese ink (Günther and Wagner). The whole is mixed and spread out on the slide, as a blood film is made, allowed to dry, and examined with an oil immersion lens. The ink produces a dark background and the objects under examination stand out white, as in Fig. 1.

Should the *S. pallida* be found before the patient gets a rash or general symptoms, and the chancre be so situated as to be easy of removal, it should be removed by the knife, because cases have occurred where, after excision of a true chancre in which the *S. pallida* was proved to exist, neither secondary nor tertiary symptoms have followed. Such cases are exceptional and secondaries usually do appear, but when they do their severity is certainly diminished by excision.

It is wise, then, to *place no reliance upon a negative Wassermann in the primary stage*. If positive the course is clear; the patient has undoubtedly syphilis and should be treated as a syphilitic.

Secondary syphilis.—In this stage a positive Wassermann is obtained in 85 per cent. of *all* cases—cases alike where an eruption is present, where there is no manifestation at the time, and where the patient is undergoing treatment. When there is a rash and the patient has not yet had any mercury no less than 97 per cent. give a positive result. This is sufficient indication to start treatment and is proof positive of the rash being syphilitic, for one never gets a positive reaction in a non-specific case. When no sign is present 80 per cent. of cases in the secondary stage are positive.

The positive cases should receive treatment at once. The other 20 per cent. may be negative: (1) because the syphilitic virus has disappeared or is dormant and there is no specific antibody in the serum; (2) because the patient is taking mercury; and (3) because the patient forms one of the 3 per cent. who in any case give a negative reaction. Having sufficient evidence that in the first of these categories the patient has had syphilis, and that he has not received at least two years' treatment in spite of the negative reaction, treatment should be continued till the end of the third year.

A word on *treatment in general*. Treatment can be

divided into two classes: (*a*) continuous; (*b*) intermittent. In this country the continuous treatment is the rule—i.e., mercury is given internally for a period of two or three years. On the continent the intermittent treatment is more in vogue—i.e., a patient receives so many courses in the three years. A course of inunctions and injections lasting about six weeks is given two or three times a year. The influence of the Wassermann reaction on the continuous treatment cannot be estimated, since, if a patient has been told of the necessity of taking pills for three years he will object if his doctor changes his mind and knocks him off to have his blood examined, because a sufficient interval must elapse from the last dose of mercury before the test is carried out, owing to the tendency of mercury to convert a positive into a negative result.

The influence on the intermittent treatment is different. Directly after a course the reaction is usually negative; when positive the course should be prolonged. When the mercury, hastened by the use of iodides, has been eliminated from the system the reaction may be positive or negative. The greater the number of previous courses, the more likelihood there is of a negative result; but such cases almost invariably become positive the moment symptoms reappear. There is no doubt that syphilis may run a mild or a severe course, and it is not unlikely that some cases do not require the three years' treatment. Whether this is so or not can only be proved where the treatment is intermittent; the time is not far distant when we shall be able to say whether further treatment is necessary or not. For instance, should a case give a negative reaction three, six, and nine months after the last course it can be considered cured. This would be a tremendous advance, since every patient becomes anæmic, loses weight, and becomes depressed from the prolonged use of mercury. At present the reaction is not certain enough to be relied upon to this extent; while it shows the advantage of the intermittent over the continuous treatment, it does not at present entitle us to depart from the three years' *régime*.

One other point as regards treatment. The earlier the disease is diagnosed and the more vigorous the primary treatment is, so much the sooner will a permanent negative reaction be given. The most vigorous of all forms of treatment is by inunction daily under medical control, no "rubbings" being given at home. The mercury gets into the system quickly, and the amount absorbed can always be gauged by the straight line the gums take, especially below the incisor teeth of the lower jaw. Injections are less potent and oral administration very much less. Pills are especially liable to cause a stomatitis, a stomatitis not due to an overdose of mercury, since the sore mouth and gums, &c., get well at once if injections are used. Pills no doubt predispose to chronic superficial glossitis and cancer, since syphilis is more common on the continent than in England, but tertiary lesions of the tongue and mouth are very much more common in England than on the continent. Patients with tongue lesions, even those who have taken pills regularly for years, always give a very strong positive reaction; and in most cases the condition steadily gets worse as the pills are continued but improve when injections are given. It is not uncommon to find that late syphilitic lesions with a positive reaction, however vigorous the treatment may be at the time, never give a negative reaction. Wassermann's reaction shows us the enormous benefit which arises from an early and vigorous treatment of the disease and the advantage of inunctions and injections over oral administration of mercury.

Tertiary syphilis.—There is no hard-and-fast line between secondary and tertiary syphilis, since gummata may occur as early as the eighth month after infection. For convenience sake we will consider under this heading cases which come up after a three years' treatment. Patients with obvious gummata or other syphilitic manifestation should at once receive mercurial treatment—not potassium iodide alone, as is so often given. A gumma means that the syphilitic virus is still active, and as mercury is the only specific drug the presence of a gumma is sufficient reason for its use. Combine it with iodides by all means, but it is better to give a course of mercury and follow it up with iodides, since the latter aid elimination of the excess mercury which has accumulated in the system.

Taking all patients in the tertiary stage, 70 per cent. give a positive result. Many have no symptoms and give a negative result; these may be regarded as cured. Others have no symptoms but yet give a positive result; in these suspect some visceral lesion, such as internal gummata, arteriosclerosis, aortic disease, or the nervous manifestations. When a positive result is given, treatment should be started, except in cases of tabes or general paralysis of the insane, in which mercury usually tends to aggravate and to hasten the course of the disease.

100 per cent. of cases of general paralysis of the insane and about 60 per cent. of cases of tabes give a positive reaction. This high percentage is probably due to the lack of signs of syphilis in the earlier stages of the disease, which also means a lack of treatment. Several cases are reported where a patient had a sore with no obvious secondary symptoms, but followed by tabes or general paralysis of the insane in later years.

Wassermann's reaction is extremely useful in such cases as: (1) that of a man who gives a history of a sore which appeared a few days after connexion and disappeared within ten days or a fortnight. No notice is taken at the time, but some months later a few spots appear on the body and a medical man is consulted. He cannot be quite sure about these spots. Where there is doubt the possibility of syphilis is always present. Mention of a sore on the penis some months previously confirms the diagnosis. To clear up the diagnosis mercury is given, and the spots vanish or remain. Laymen are sufficiently well educated nowadays to know what mercury means. Some are convinced that they are suffering from syphilis, and may not trouble about it until they want to get married. Or they are not satisfied and require a second opinion. In such cases the history should be carefully gone into and the blood examined not less than one month after cessation of mercury, iodides having been given for the first three weeks. If the result is negative the patient can with safety be informed that he can marry, that no further treatment is necessary, and that the probability of his ever having had syphilis is remote. (2) Differential diagnosis between varicose ulcer and gumma, which may be difficult, and since ulcers usually occur in women history throws little light upon the case; (3) diagnosis between gummata of the testes, tubercle, and new growth; (4) diagnosis between gummatous periostitis and sarcoma—limbs with syphilitic periostitis have been amputated for malignant disease; (5) diagnosis between gumma and malignant growth of the liver; (6) diagnosis between syphilitic disease, tubercle, and carcinoma of the rectum; and (7) in the case of a man who has had well-treated syphilis and is anxious to know whether it is safe for him to marry. In the last mentioned case it is wise to allow three or six months to elapse after the last treatment, before the blood is examined. If the result is positive advise against, if negative for, marriage.

A syphilitic woman, or a woman who has aborted several times and gives a positive reaction, may, if rigorously treated during her pregnancy, produce a healthy child. In such a case the child's blood should be tested as soon as possible after birth. If the reaction is positive it should receive a two years' treatment; if negative, it can be considered free of hereditary taint.

Colles's law tells us that a syphilitic child may be born to a syphilitic father without its mother being infected, she being rendered immune. Profeta's law tells us that a healthy child may be born of a mother who became infected during pregnancy, and that the passive immunity of such a child disappears before puberty. Wassermann's reaction shows that in both cases the supposed immune person gives a positive result, and therefore must be regarded as syphilitic and infectious.

Such being the case, the following suggestions must be made:—1. When a man infects his wife both should be rigorously treated, and the woman should be re-treated during each pregnancy. 2. (*a*) A syphilitic woman should be treated during the whole nine months of her pregnancy. (*b*) An apparently healthy woman whose blood gives a positive reaction should be so treated during each pregnancy. 3. (*a*) A syphilitic child should be suckled only by its mother, never by a wet nurse. (*b*) An apparently healthy child, either of whose parents has had syphilis, should only be suckled by its mother. (*c*) Should such an apparently healthy child react positively to Wassermann's test, it should receive antisyphilitic treatment. A positive reaction can be obtained in a congenital syphilitic on the day of birth.

A congenital syphilitic is peculiar, in that mercury has

little influence in converting a positive into a negative reaction. Children who have had congenital syphilis, and who have received treatment, show no signs for years, yet not infrequently react positively. Such being the case, no rule can be laid down as to how long a syphilitic infant should receive treatment. As our knowledge stands at present, it is safest to give mercury over a period of two years.

The importance of diagnosis in a congenital syphilitic, who has never shown symptoms, is great, since the reaction has shown the possibility of the next generation inheriting the disease.

Life insurance.—Wassermann's reaction is now entitled to play an important rôle in determining the knotty problems of life insurance. The statistics quoted above are decisive on this point. A proponent with a recent history or with present manifestations of syphilis is, according to present custom, rejected or deferred by most offices. This is a sound principle. But the facts and conclusions cited in this article justify a closer scrutiny of all syphilitic cases. A candidate giving a positive reaction, even though years may have elapsed since the original infection, should be regarded as ineligible, for such a result usually signifies the presence of a visceral lesion that will ultimately shorten life. The virus has obtained such a firm hold that treatment, while capable of checking its course, can never thoroughly get rid of it. Furthermore, a candidate yielding a positive reaction after shorter lapses of time—say, three years from the date of the primary lesion—should be received with caution, for this usually denotes that the early treatment of the patient has been insufficient and inadequate, with consequent liability to the later manifestations of the disease. On the other hand, a candidate may be accepted who, having completed a two years' course of treatment, shows a negative reaction on being tested at intervals of three, six, and nine months after such a course. The influence of syphilis on his chances of life may now be safely discounted. In no case is acceptance warrantable until two years have elapsed since the original infection.

After reading this article the question will naturally be asked, Why is it that 100 per cent. of cases—in other words, all cases—of florid syphilis do not give a positive reaction? The answer very probably is that, whilst inactivating the patient's serum to rid it of its complement, the first action of the rise of temperature is to cause in some cases a linking of the complement with the antibody which is present in the serum. This would produce a diminution of free antibody, therefore all the fresh complement from a guinea-pig's serum added in the test could not be used up; some would remain free, which combining with the amboceptor from the rabbit's serum, would bring about hæmolysis of the sheep's red blood corpuscles.

The complement in a human serum disappears by the third day, even when the serum is kept at a temperature of 0° C. If, then, a patient's serum is kept four or five days and not inactivated by the usual heating many of the cases which gave a negative result now give a positive result. 1500 cases have been described [2] where the serum was used, both active and inactive, with the most gratifying results in favour of the former over the latter method.

Wechselmann in Wassermann's Laboratory [3] has made the most interesting experiments to rid the serum of all its complement. He takes 0·9 cubic centimetre of active serum + 3 cubic centimetres NaCl solution + 0·5 cubic centimetre of a 7 per cent. emulsion of fresh precipitated barium sulphate. After well shaking this mixture is put into an incubator at 37° C. for an hour and then centrifugalised. 1 cubic centimetre of the solution is used for the reaction. From 41 cases which had given a negative reaction 38 of these tested in this way gave a positive one. This will make a negative reaction of enormous value, and after testing some hundreds of cases we shall very soon be able to regulate our treatment by means of the reaction.

With regard to the technique of the operation the patient's blood is best obtained from the finger pulp. The instrument as figured (Fig. 2) has a four-surfaced blade, sharp at the point and two sides; at the base is a neck which prevents the blade, which is 5 millimetres in length, from penetrating too far. One quick plunge is made, the finger "milked," and as much as 3 cubic centimetres or more of blood are quite easily obtained; 0·5 or 1 cubic centimetre is really quite enough. This instrument does not hurt the patient nearly so much as the usual needle, which is blunt at one side, and it has the further advantage of making it easy to get as much blood as is required. Taking blood from the finger is, both from the patient's and the doctor's point of view, more satisfactory than bleeding a vein in the forearm. The pulp of the finger should be cleaned first with absolute alcohol. After enough blood has been obtained a piece of strapping, cut in the usual shape of a finger-dressing, should be applied to the finger with a piece of gauze fixed to the sticky surface of the strapping. This strapping can be removed in 12 hours.

FIG. 2.

Harley-street, W.

[2] Practitioner, September, 1909.

[3] Zeitschrift für Immunitätsforschung und Experimentelle Therapie, Band III., Heft 5.

A CASE OF TETANUS TREATED WITH SUBCUTANEOUS INJECTIONS OF MAGNESIUM SULPHATE; RECOVERY.

BY PETER PATERSON, M.B. GLASG.,
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SINCE Meltzer, in 1905, showed that paralysis of nervous tissue could be induced by magnesium salts, a considerable number of tetanus cases have been treated with solutions of this salt and with highly gratifying results. The majority of the recorded cases have been treated by subarachnoid injections, while in a few the salt has been introduced into the subcutaneous tissues, but in most, if not all, these injections have been regarded as supplementary to the serum treatment. Wassermann, Babes, Kowalski, and others have had encouraging results from frequently repeated subcutaneous injections of a fine emulsion of rabbit's brain in normal saline solution. This fresh nervous matter acts, in all probability, by combining with the tetanus toxin circulating in the blood, and thus its absorption by the nervous system of the patient is prevented; it can have no action on the toxin already fixed in the patient's nerve cells. Magnesium sulphate, again, has no effect on the toxin, either fixed or free; hence, so long as toxin is being formed at the seat of infection, injections of this salt do not prevent its absorption by the nervous system. It only acts by controlling the spasms, and, by conserving the patient's strength, gives him time to form his own antitoxin. If, then, both brain emulsion and magnesium sulphate were injected at the same time, it seems to me that the patient would have a better chance of recovery than when only one of these is administered, as the magnesium salt would diminish the spasms produced by the toxin already fixed, whilst the brain emulsion would prevent, or at any rate diminish, absorption.

In the case of which the following is a short summary only the magnesium salt was employed. The patient, a coal-miner, 21 years of age, was admitted to hospital three weeks after he had received a small wound on the scalp from a kick. This wound must have been a very superficial one as it healed in a few days and left no visible scar; in fact, it is doubtful if this actually was the seat of infection as his hands showed numerous small cuts and abrasions, any one of which might easily have given entrance to the bacillus. The symptoms commenced six days before admission with pain and stiffness in the abdominal

walls and muscles of the back. These pains gradually became worse, till on the morning of admission he had a "convulsion" which lasted about five minutes. When brought under observation the whole body was rigid, with the exception of the forearms and hands. Opisthotonos was well marked; the legs could not be moved, and the incisor teeth could be separated for about an eighth of an inch only. All the affected muscles were very hard. He complained of severe and continuous pain across the upper part of the abdomen and down both legs. Superadded to the tonic contractions of the muscles there were almost continuous cramp-like spasms. Every two or three hours these became very severe, and implicated, not only the muscles of the trunk and limbs but also those of respiration, so that breathing was suspended, the face became cyanosed, the pupils dilated, the pulse thready, and occasionally consciousness was lost. The temperature was 100° F., the pulse 96, and of moderate tension. A count of the white blood cells gave 12,000 per cubic millimetre, of which 84 per cent. were polymorphs. Perspiration was free but not excessive. The urine was free from albumin. During the night he was very restless and did not sleep.

The following day he received a subcutaneous injection of 10 cubic centimetres of a 10 per cent. sterilised solution of magnesium sulphate, 5 cubic centimetres being introduced into each thigh. Soon after this injection he obtained an hour's sleep, the first he had had for 48 hours. These injections, which were repeated every four hours, night and day, for two days, gave him so much relief that he frequently cried for them, even though they were very painful. After two days of this treatment the comparatively slight and more frequent spasms had almost entirely disappeared, the pain had become much less acute, and the severe spasms had become less frequent, there being one only every 5 to 12 hours instead of every 2 to 3 hours as formerly. As these were still so severe as to threaten life the dose of the magnesium sulphate solution was rapidly increased till 20 cubic centimetres were administered at one time, 10 cubic centimetres being injected into two separate parts of the body at one time. This increased dose was repeated every four hours and continued for four days. The effect of this treatment seemed to be a prolongation of the interval between the spasms, there now being only one, or at most two, in the 24 hours. The rigidity of the jaws, abdomen, and back was still present, but that of the legs was passing off, as he was able to draw them up in bed, though with difficulty. The injections were now stopped, partly because the spasms were diminishing in frequency and partly because he was strongly objecting to the pain they caused him. The day after the treatment was stopped an erythematous rash appeared over his shoulders and gradually spread, till three days later the greater part of the body was covered; it then began to fade and a week later had disappeared. This rash did not give rise to any evident constitutional symptoms. At the same time he suffered much distress from a collection of viscid saliva at the back of his throat. This mucus could not be swabbed away as he could not open his mouth sufficiently to permit this, and he was afraid to cough it up in case the exertion should produce a spasm. The last severe spasm was recorded three days after the injections had been stopped, and though he still had at long intervals slight attacks of cramps, his chief complaint was the pain resulting from the injections. The rigidity was now becoming less marked, though it varied in degree from time to time. At one visit the legs, for example, could be moved quite freely, while at the next movements could only be performed with difficulty. Evidently relaxation was not a continuous process but was interrupted by a series of long drawn out, painless, and ill-defined waves of tonic contractions, slight in degree. The abdominal muscles were the last to lose their board-like rigidity.

The patient left hospital five weeks after admission. When seen three weeks later he was about to return to his work. Throughout his illness he could swallow without difficulty, and as his thirst was great he was able to take a large quantity of nourishment. The thirst was specially marked during, and for a few days after, the administration of the injections. During this period he took on a daily average 8 to 10 pints of fluid, consisting of strained soup, milk, water, and an occasional beat egg. The quantity of urine was not increased, but he lay soaked in perspiration. The latter may have accounted for his thirst, though the introduction of so much salt into the circulation may have been partly responsible. The bowels moved two to three times daily, and the motions were inclined to be loose. The temperature never rose above 101° F., but it did not fall to normal till four weeks after admission and fully a fortnight after the spasms had ceased. The pulse varied from 100 to 120, except during a spasm, when it would mount to 130 or 140 per minute.

It would have been safer, perhaps, to have continued the injections for a day or two longer, but they were stopped for the reasons already mentioned. The great objection to this method of treatment is the pain produced by the injections, but I think this could be overcome to a considerable extent by using larger quantities of a weaker solution.

Glasgow.

TWO CASES OF HÆMORRHAGE FOLLOWING GASTRO-ENTEROSTOMY WITH CLAMPS.

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With a Note upon the Cases by J. E. PLATT, M.S. Lond., F.R.C.S. Eng., *Honorary Surgeon to the Manchester Royal Infirmary; Lecturer on Practical Surgery at the University of Manchester.*

Mr. Sinclair White's report in THE LANCET of Jan. 22nd of a case of hæmorrhage after the use of clamps in gastro-enterostomy, the letter of Mr. R. W. Murray in the issue of Feb. 5th reporting a further example, and several cases reported in subsequent issues, have led me to record the following two cases which have recently occurred at the Manchester Royal Infirmary.

CASE 1.—The patient, a male, aged 39 years, had suffered for 13 years from pain after food and vomiting. These symptoms had gradually increased in intensity from the first onset until his admission to the medical wards of this hospital under Dr. E. M. Brockbank on Nov. 26th, 1909. At the time of admission the patient vomited several times a day, sometimes as much as three pints at once. No blood was ever vomited, and there had never been melæna. After three weeks' careful observation Mr. J. E. Platt was asked to perform gastro-enterostomy. This operation was carried out on Dec. 17th. A dilated and toneless stomach was found with cicatrices on the anterior surface near the pylorus. Posterior gastro-jejunostomy was performed with no loop and without reversal. Two rows of sutures were used, an outer serous layer and an inner layer passing through the whole thickness of the wall of the stomach and jejunum. The sutures were placed about one-eighth of an inch apart. The clamps used were of Doyen's pattern and they were removed immediately before the anterior serous layer of sutures was inserted. The patient at the end of the operation showed no signs of shock; the pulse was of good quality and about 80 per minute. He was put to bed in the Fowler position. During the same evening he seemed very comfortable and had frequent mouth washes. He was given 6 ounces of saline solution per rectum every four hours and 12 hours after the operation he was allowed small sips of hot water. On the following morning the patient's condition was excellent; the pulse was 76, the temperature was 98·2° F., and the abdomen was moving well and was not at all distended. At 4 P.M. he awoke suddenly from sleep, complaining of an aching pain in the abdomen. He at once collapsed and presented a typical picture of hæmorrhage—great pallor with cold perspiration, quiet sighing respirations, and a pulse of 130 per minute and almost too "thin" to be felt. He was given 10 ounces of saline solution per rectum, and a hypodermic injection of 10 minims of digitalone. His breathing was extremely shallow, and he was given oxygen inhalations at intervals during the next two hours, at the end of which time he showed considerable improvement. From this time onwards until his discharge on Jan. 10th, 1910, the patient rapidly recovered without any further interruption. On the evening of the day following the collapse he passed two large semi-fluid stools, quite black in colour, and consisting almost entirely of altered blood, thus confirming our diagnosis of hæmorrhage.

CASE 2.—The patient, a man, aged 49 years, was admitted to the hospital, under Dr. Brockbank, on Jan. 12th, 1910,

having suffered for a year from epigastric pain which came on two or three hours after food and was always relieved by taking food. These symptoms had become steadily worse, with the exception of a month's interval during last summer, when he was medically treated in this institution. There had latterly been occasional vomiting after the pain has occurred, but there had never been hæmatemesis or melæna.

The patient was admitted to the surgical wards on Jan. 27th, 1910, under Mr. Platt, who operated four days later. The stomach was found to be slightly dilated, cicatrices were present in the first part of the duodenum close to the pylorus, and there were numerous adhesions between the duodenum and the gall-bladder. The operation was precisely the same as the one previously described, with the exception that instead of Doyen's clamps the pattern known as the Roosevelt-Moynihan clamp was used. There was no shock after the operation and the patient was quite comfortable and progressing well until the following afternoon, when he suddenly gave a cry and complained of pain in the umbilical area. He was quite collapsed and his pulse became "thin" and rapid (136). He was given 10 ounces of saline solution per rectum and a hypodermic injection of morphia (5 minims) was administered. After about half an hour he showed some improvement; in three hours he was considerably better and a further 10 ounces of saline solution were given. On the day following he passed a fluid stool which was quite black and which measured about 16 ounces. Since that time his progress has been uninterrupted.

I am greatly indebted to Mr. Platt for his permission to publish these cases.

Note by Mr. PLATT.—The two cases above mentioned are the only cases of gastro-enterostomy I have done in which I have reason to suspect that there has been any subsequent hæmorrhage. In the second case the stomach wall was more vascular than usual, and I therefore placed the inner row of sutures very close together. It appears probable that there is little risk of hæmorrhage from the jejunum, and that the bleeding is most likely to come from the side of the stomach incision near the greater curvature. As a means of retaining the advantages of clamps and at the same time obviating the risk of subsequent hæmorrhage, I would suggest that after the posterior rows of sutures are inserted the stomach clamp be loosened and the main bleeding points picked up. The clamp can be then tightened again and the anterior suturing completed. I have several times adopted this procedure in order to complete the diagnosis when I have been still in doubt after an external examination of the stomach, and in this way have been able to decide definitely whether one had to deal with a simple ulcer or a malignant condition.

Manchester.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

PATHOLOGICAL SECTION.

Gastric Analysis.—Pernicious Anæmia.—Amyloid Degeneration in an Adenoma.—Primary Carcinoma of the Liver.

A MEETING of this section was held on March 15th, Dr. F. W. MOTT, the President, being in the chair.

Dr. W. H. WILLCOX read a paper on the Diagnostic Value of the Chemical Analysis of the Gastric Contents after a Test Meal, which we shall print in a future issue.

Dr. F. H. THIELE read a paper on Some Observations of the Pathology of "Pernicious" Anæmia, and compared them with two cases of aplastic anæmia. With regard to the pernicious anæmia, complete examinations were made of 15 cases. The duration of these varied from three months to four years. The great characteristic of the blood examination was the megalocytosis; in no other form of anæmia was this so striking. Besides the megalocytes there were numerous microcytes in all the cases. Nucleated cells, even after prolonged searches, were not always found, and this was especially the case with regard to megaloblasts. Furthermore, as with the non-nucleated cells, all gradations in size from the normocyte to the megalocyte were met with, so all gradations in size and character of nucleus from the typical normoblast to the typical megaloblasts were encountered, and, in fact, typical gigantoblasts as seen in the marrow and described by Ehrlich were quite infrequent, and if the megaloblastic criterion of Ehrlich had been adopted some of the cases would not have been included under this group. Two cases were recorded in which the red cells at the onset of the condition had the characters of those met with in ordinary anæmias, which later more or less rapidly took on the megalocytic type. In most cases during complete quiescence the red cells lose this character, but in some of the cases here noted the cells retained this feature, even though the patient was well for years without any symptom of the disease. In nearly all the white cells were diminished and there was a relative lymphocytosis. The marrow in all the cases was increased and had become deep red in the shafts of the long bones and showed the typical characters described by Muir. In some, however, in addition, the leucoblastic change was very prominent. The liver, spleen, and kidneys contained large quantities of iron, except a few in which the amount of iron in the liver was scarcely above normal. The amount in the spleen and kidneys, however, was quite large, in fact somewhat higher than in the other cases. The amounts bore no marked relationship to the duration of the disease. In all cases there were some changes in the alimentary canal. Pyorrhœa alveolaris was present in 80 per cent. of the cases, glossitis in 50 per cent., gastric lesions from small round-celled infiltration and some loss of glands to complete atrophy were present in 75 per cent., and intestinal lesions in 66 per cent. The lesions in the intestine were all fairly recent in appearance. In three cases there was great enlargement of the spleen, which in all contained a large amount of iron, and peculiarly showed some recent perisplenitis. The urine in all cases contained excess of urobilin, and jaundice occurred at intervals in quite a marked proportion. In one case there was marked combined sclerosis of the spinal cord; in another, peripheral neuritis. Subjectively gastro-intestinal symptoms were prominent in all cases, vomiting, diarrhœa, abdominal pain, girdle pains in the epigastrium, &c. The cases of aplastic anæmia both occurred in strong male subjects. The course was very rapid. Purpuric lesions were marked in both cases. Pyorrhœa was present in both, as well as inflammatory lesions in the tongue, and in one there were intestinal lesions. The blood showed excessive oligocythæmia, there was no megalocytosis, no nucleated cells, but microcytes occurred. The colour index was very low. The white cells were greatly diminished and there was a relative lymphocytosis. The marrow of the epiphyses and long bones in both was quite yellow, and in the ribs it was pale and had fatty areas. The smears from this showed no evidence of megaloblasts, but normoblasts, myelocytes, and lymphocytes. The organs, like those of the "pernicious" anæmia type, showed marked fatty changes, and necrotic changes occurred in the liver. In one case there was no increase of iron in the liver; the other, however, had large excess in the liver, spleen, and kidneys. The urine in this case contained urobilin in excess. The points which these cases of pernicious anæmia brought out were: 1. The typical megalocytic type of blood which rarely occurs in such marked degree, apart from this disease, and its peculiar persistence even when the cause which has given rise to the megaloblastic degeneration of the marrow has ceased to operate for a prolonged period and the marrow would be expected to have recovered its normal condition. 2. The great frequency of the oral-gastro-intestinal lesions. In one case long mycotic chains of streptococci were found in the vomit, in three the streptococcus fæcalis was found on the tongue, and in two cases it was obtained from the spleen. 3. That although in the majority of cases there were large amounts of iron in the liver it occasionally occurred that there was very little, and it was possible that the hæmolysis occurred especially in the spleen, because in two of these cases the amount of iron in the spleen was the largest recorded in the series, and in one where the necropsy was performed fairly early the streptococcus fæcalis was found in the spleen. 4. The question was discussed if urobilin in excess in the urine necessarily pointed to increased hæmolysis. 5. The frequency of jaundice of slight degree pointed to the action of some toxic substance absorbed from the alimentary canal or the liver. 6. Finally the question of the position of the

aplastic anæmias was discussed and one case appeared to point to the fact that marrow hæmogenesis did not always occur in "pernicious" anæmia, where all the symptoms and post-mortem findings were characteristic of a case of this disease except the blood and marrow changes.

Mr. S. G. SHATTOCK exhibited a specimen of Amyloid Degeneration in an Adenoma of the Liver, which was of interest as being the first demonstration of this degeneration met with in a new growth. The tumour itself was of large size, and in structure closely resembled hepatic tissue. The hepatic substance itself, which was displaced over the growth, exhibited the same degeneration, the disease in this, as in the tumour, being confined to the vessels.

Dr. F. PARKES WEBER read a paper on a case of Bile-producing Primary Carcinoma of the Liver, which will be published at length in THE LANCET shortly.

THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Latency of Malarial Infection.—Typhoid Fever Prophylaxis.—Fever with Rash in the Yangtse Valley.

A MEETING of this society was held on March 18th, Dr. F. M. SANDWITH being in the chair.

Dr. OSWALD BAKER communicated a paper on the Duration of Latency of Malarial Infection, in which he described the persistence of latency for 13 years. He had grown old in the belief that if a person who was subject to malarial attacks took up his abode in a malaria-free country and remained exempt from any manifestation of malaria for a period of three years he might consider he had got quite rid of the infection; in other words, that the plasmodium of malaria could not exist in a latent state beyond a period of three years. But he had now abandoned that belief, which he felt sure was erroneous.

Dr. EMMETT I. VAUGHAN communicated a paper entitled "A Problem in Typhoid Fever Prophylaxis and the Solution of the Same," in which he detailed various methods of typhoid prophylaxis. The paper, which was an interesting recital of a sanitary problem that frequently arises in tropical communities, related the steps taken to solve it in the district of Gatun, Canal Zone, from the standpoint of the general sanitarian rather than that of the physician dealing with individual cases.

Dr. ALEXANDER C. LAMBERT communicated some notes on cases of Fever, with an Urticarial Rash, occurring in the Yangtse Valley. Of late years medical men stationed in the Yangtse Valley had noted the appearance in summer and autumn of a disease characterised by fever, rash, and general symptoms, pulmonary or alimentary, or both combined, accompanied also by a good deal of prostration and followed by a protracted convalescence, which happily ended in complete recovery in the vast majority of cases. Although the causal agent had not been described, there would appear to be a definite relationship between physical contact on the part of the patient with the mud in paddy-fields and creeks and shallow lakes emptying into the Yangtse, and the subsequent development of the disease a few days later. It would seem that the carrier of the infective agent of the disease was either a biting, water-haunting fly or insect or some mud-dwelling animal of similar propensities. The disease, as far as was known, was entirely confined to the Yangtse River and was not mentioned in any text-books.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Intraperitoneal Hæmorrhage.—Cases and Specimens.

A MEETING of this society was held at Sheffield on March 18th, Dr. W. K. WALLS (Manchester) being in the chair.

Dr. A. W. W. LEA (Manchester) reported a case of Diffuse Intraperitoneal Hæmorrhage of Ovarian Origin, probably from rupture of an early ovarian pregnancy. The patient, a multipara aged 29 years, was seen by Dr. Lea eight hours after the sudden onset of severe abdominal pain, with vomiting and faintness. She was extremely pallid, with a barely perceptible pulse, exceeding 130 beats in the minute. The abdomen was somewhat distended and extremely tender. There were signs of free fluid in the abdomen. The menstrual history showed nothing abnormal. A natural period had occurred three weeks previously. Vaginal examination revealed indistinct fulness in the pouch of Douglas, but no obvious swelling in the appendages. There was no uterine hæmorrhage. Within an hour the abdomen was opened. A large quantity of fluid and clotted blood was found free in the peritoneal cavity. There was no enlargement of the Fallopian tubes. From the surface of the left ovary projected a thin-walled blood cyst, which had obviously ruptured and was collapsed. The left appendages were removed. The right Fallopian tube appeared perfectly healthy. The patient recovered without any complication. The menstrual period commenced four days subsequently and continued for three days, being of the usual type, without pain. The specimen and a number of microscopical sections were shown. The Fallopian tube was quite normal in appearance and on section one pole of the ovary had been distended by a blood cyst which was partially destroyed during its removal. Careful examination of the blood clot revealed a small area in which the presence of chorionic villi could be clearly demonstrated in microscopical sections. Sections of the ovary showed marked dilatation of blood-vessels, with many areas of hæmorrhage in the stroma. The specimen excited considerable interest, and members were unanimously of the opinion that it would prove to be another example of ovarian pregnancy. Dr. Lea stated that further microscopical investigations would be made in order to determine the exact nature of the specimen.

Mr. R. FAVELL (Sheffield) showed an Accessory Lobe of the Liver which he had removed from a woman aged 30 years. The patient had never been well since a septic abortion six years ago. For about six months she had had pain in the right side and had noticed a lump. She had not been sick, and there had been no jaundice. She was pale and of a rather neurotic type. The abdomen was somewhat distended, and in the right iliac fossa there was a freely moveable swelling of the size of an orange. On bimanual examination the swelling could be felt at the pelvic brim. The left ovary was normal in size. The tumour was thought to be a right cystic ovary, with a large pedicle. On palpating the abdomen under anæsthesia it was noted that the tumour had the pendulum movement of a gall-bladder tumour, and that it could not be pushed into the true pelvis. The abdomen was opened below the umbilicus, and an elastic globular tumour of the size of a large Jaffa orange was seen to be attached to the liver by a short broad pedicle. The tumour was dark purple in colour in marked contrast to the colour of the liver, and its surface was marked by milky-white bands running in its capsule. Large vessels ran from the pedicle over the surface of the tumour. The pedicle was attached to the thin anterior margin of the right lobe of the liver. After clamping, the pedicle was cut through and the bleeding was controlled by a double layer of mattress sutures of catgut. The whole operation was performed outside the abdomen through an incision the upper end of which was one inch below the umbilicus. There was considerable ptosis of the liver. The patient made an uninterrupted recovery. On bisection, after hardening in formalin, the tumour was seen to be of a mottled greenish-yellow colour, and irregularly lobulated by fibrous bands and blood-vessels. The colour quickly changed to an olive-green. Microscopical section showed liver tissue undergoing fatty degeneration.

Dr. A. W. CUFF (Sheffield) read notes of four cases illustrating Difficulties in the Diagnosis of Ectopic Gestation.

Amongst the specimens exhibited were: (1) Large Fibro-Cystic Tumour of the Uterus, by Dr. J. W. MARTIN (Sheffield); (2) Submucous Myoma, which had been enucleated through the cervix, by Dr. D. LLOYD ROBERTS (Manchester); and (3) Bilateral Solid Ovarian Tumours Secondary to Carcinoma of the Stomach, by Mr. FAVELL.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 10th, Mr. George Wilkinson, the President, being in the chair.—Dr. Arthur J. Hall read a paper entitled "Some Remarks on Intracranial Tumours." He referred to the clinical differences between tumours as understood when affecting other parts of the body

and intracranial tumours. Whereas the varying importance of different tumours in the body generally depends upon their histological structure—namely, whether they are malignant or innocent—such a distinction is of much less importance with intracranial tumours. The mechanical factors of a closed, practically non-expansile box, and a delicate, easily compressed, and in many parts vital, organ already filling the box play so large a part that a tumour innocent histologically, and small as tumours go, may yet prove as fatal within the cranium as if it were malignant. As the trouble is due to increased intracranial pressure one may include clinically with tumours such different pathological entities as tuberculous foci, gummata, cysts, including chronic local serous meningitis, abscesses, aneurysms, and even hæmorrhages. And although it probably never happens that an ordinary cerebral hæmorrhage is wrongly diagnosed as a tumour, yet the converse is often true—a tumour with sudden hemiplegic onset being diagnosed as merely a cerebral hæmorrhage. As regards treatment, the only drug of any benefit is iodide of potassium, and this should always be given early and fully, whether there is or is not a specific history, for it is always possible that there may be a gumma present when no other symptoms of the disease have at any time presented themselves, and it is absolutely latent. Also other conditions such as chronic serous meningitis may improve temporarily, even to a remarkable extent, under the drug, and lastly, other unexplained cases ("pseudo-tumours"), apparently showing all the symptoms of intracranial tumours, have benefited or disappeared. It must be remembered before urging operation that there are cases of tuberculous foci which improve instead of getting worse owing to their gradual shrinking, and also that there are cases of slowly developing tumour, such as osteo-fibroma, which may remain practically quiescent for many years. As regards operation, in spite of many difficulties and failures, yet the occasional brilliant result obtained and the desperate nature of the disease make every careful effort at localisation and removal not only warranted but to be strongly urged. These two points—viz., the great suffering in a progressive case when left to itself and the occasionally brilliant results of operation even in apparently hopeless cases—should be constantly and repeatedly impressed upon our minds. As regards symptoms, reference was made to the occasional but very rare complete absence of headache throughout. The paper was illustrated by a large series of lantern slides prepared from photographs of specimens in the Pathological Museum of the University of Sheffield, and concluded with a description of two cases of tumour of the third ventricle causing sudden death.—Professor J. M. Beattie read a paper on Further Experiments with a Streptococcus isolated from cases of Acute Rheumatism. The paper dealt with the results of intraperitoneal and intravenous injections of cultures of this streptococcus in rabbits, and was illustrated by numerous statistical slides.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on March 18th, Professor R. Stockman being in the chair.—Dr. Oscar Kraus (Carlsbad) read a paper on the Examination of Fæces in Medical Practice, which we intend to publish shortly.—Dr. J. M. Renton read notes on Some Cystoscopic Cases. In Case 1, a woman, aged 27 years, with tuberculous disease of the right kidney, cystoscopic examination after the injection intramuscularly of a solution of indigo-carmine showed that only this kidney was functioning, the other having been probably destroyed by antecedent disease. Treatment with tubercular vaccine was successful. In Case 2, a woman, aged 34 years, with a streptococcal pyelitis, the cystoscopic examination determined that the left kidney was the seat of disease. Incision of the kidney and drainage led to recovery. In Case 3, a man, aged 29 years, stone in the bladder had been diagnosed. The cystoscope showed merely a chronic cystitis, which bacterial examination proved to be gonorrhœal. Case 4, a woman, aged 35 years, presented symptoms of vesical calculus, but the sound failed to reveal a stone. With the cystoscope a small uric acid stone was seen lodged on a shelf of granulations. This was extracted per urethram. In Case 5, a man, aged 63 years, symptoms pointed to prostatic enlargement, though no enlargement could be felt. Cystoscopic examination showed a marked intravesical projection of the prostate. Suprapubic prostatectomy was performed with a good result. Case 6, a woman, aged 50 years, had painless hæmaturia intermittently for three or four years. Cystoscopic examination revealed large numbers of small warty papillomata, which the microscope showed to be simple in character. By suprapubic operation as many as possible were removed. Nine months later bleeding recurred and the operation was repeated. Since then eight months have passed without bleeding, but the cystoscope still showed a considerable number of papillomata.—Dr. G. A. Allan read notes on cases illustrating the Effects of Temporary and Permanent Closure of the Cerebral Arteries. In one case, the subject of mitral stenosis, there were recurrent attacks of paralysis without loss of consciousness or of sensation. Sometimes the paralysis affected only the arm, at times the arm and leg of the same side, or sometimes a hemiplegia was noticed. The recovery after an attack, which usually lasted from 15 to 30 minutes, was always complete. The condition was known to have been in existence for at least three years. A second case had transient loss of memory lasting for 18 hours, events which occurred during that period being lost to the patient's consciousness. This case had a slightly high-tension pulse, but no evidence of organic disease. A third case developed loss of speech and paralysis of an arm a few weeks after labour. She was also the subject of a mitral valvular lesion. Later, paralysis developed in all four limbs and in the face. She became blind and gangrene occurred in several of the finger tips, the nose, ears, and other sites. The patient died two months later.—Dr. G. Haswell Wilson described the post-mortem findings. Thrombosis was found in the arterioles of the brain causing cortical necrosis, and in the peripheral arterioles where gangrene had developed. At the same time there was an entire absence of any local disease of the vessel wall to account for the thrombosis. The cases were ascribed to angiospasm, in view of the transient nature of the attack and the complete recovery in the first cases, and on account of the absence of lesion in the arterioles in the last.

UNITED SERVICES MEDICAL SOCIETY.—At the March meeting of this society, which was held at the Royal Army Medical College, the President, Surgeon-General A. M. Branfoot, C.I.E., I.M.S. (retired), being in the chair, Staff-Surgeon H. C. Adams, R.N., read a paper entitled "Treatment of Syphilis by Intramuscular Injection of Metallic Mercury: Notes on Mercurial Creams," in which a plea was put forward for a uniform method of treatment of syphilis in the Navy by the intramuscular injection of metallic mercury. It was stated that this method was the most generally reliable because it was extremely difficult to induce men to carry out a prolonged treatment by the ingestion method owing to (1) traditional objection to taking mercurial pills; and (2) men neglecting to continue their visits to the sick bay when they had no active reminder of their disease. By the intramuscular method a weekly visit only was necessary, the medical officer had absolute control as to dosage, and also digestive trouble was obviated. Inunction was obviously impossible for the Service afloat. A short history of the use of mercurial creams in the Navy was given, the various formulæ which have from time to time been adopted were described, and the essential points for an ideal cream were discussed, statements being supported by a series of samples and microphotographs of cream, which showed that the main points in an ideal cream were: (1) the mercury must be in an extremely fine state of subdivision; (2) the basis should be sufficiently fluid at ordinary temperature to work freely in the syringe and needle but sufficiently viscid to suspend the metal; and (3) there should be no abrupt transition on warming from the fairly solid to the liquid state. As the result of various experiments the following formula appeared to the author to be most generally useful: Mercury, by weight, 20 parts; anhydrous lanolin, by weight, 30 parts; chlor-butol, by weight, 2 parts; liquid paraffin to 100 by measure, the cream containing 1 grain of mercury in ℥v. A special all-glass syringe was shown fitted with a needle entirely of steel, including the socket, the use of platino-iridium needles having been abandoned because of their liability to leak along the seam. A short account of the technique was given showing that complications in this method can be obviated by attending to the following points: (1) absolute sterility of needles and materials; (2) choice of suitable site; (3) introduction of the needle at right angles to the skin well into the muscles, detaching the syringe from the needle to make sure that no blood-vessel has been entered; (4) keeping the needle

track perfectly clear of cream by ensuring that the eye of the needle is free from cream before introduction and waiting for a second after injection before withdrawing the needle.—An interesting discussion followed, in which Colonel F. J. Lambkin, R.A.M.C., Major A. P. Blenkinsop, R.A.M.C., Major C. E. Pollock, R.A.M.C., Fleet-Surgeon L. Bidwell, R.N., and Captain L. W. Harrison, R.A.M.C., joined, and the proceedings terminated with a hearty vote of thanks to Staff-Surgeon Adams.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 16th, Dr. A. Fulton, the President, being in the chair.—Dr. J. Watson and Mr. T. Burnie showed a patient with Moveable Kidney and Nerve Symptoms simulating Disseminated Sclerosis.—The discussion on the case favoured treatment by fixation of the kidney.—Dr. Watson showed several interesting Pathological Specimens.—Dr. A. Stanley Green opened a discussion on the Treatment of Gastric and Duodenal Ulcers without operation. Duodenal ulcer, owing to the care with which its symptoms had lately been taught, was now more frequently diagnosed. He could find no explanation why duodenal ulceration was so much more common in the male. These ulcers, too, became much more chronic in the male, because a man had neither the patience nor the time to complete his cure that a woman had. Among the exciting causes of ulceration were anæmia, oral sepsis, the bolting of food, and especially the hurrying off to business immediately after meals. Worry was a potent cause of recurrence, and he was inclined to look upon hereditary influence as playing a great part in alimentary ulceration. Hæmatemesis was a common symptom, but nevertheless in many cases all symptoms lay latent and perforation was the first sign of any ulceration. The immediate dangers were perforation and hæmorrhage, while the remote were pyloric obstruction, hour-glass constriction, adhesions about the bile-ducts, and cancer. Although many practitioners recommended operation as soon as the diagnosis was established, Dr. Green himself was inclined to advise this only as a last resource. He generally put his patients on a very strict diet for three months, commencing in bad cases with albumin water for the first 48 hours, and by gradual steps bringing the patient to a fairly generous diet at the end of three months, giving at the same time a mixture of bismuth and morphia with papain. Bread he found to be tolerated very badly; he had not found rectal feeding necessary.—Dr. C. H. Cattle's experience taught him that surgical treatment was generally necessary owing to the tendency to relapse.—In supporting this view, Mr. W. M. Willis pointed out how frequently old healed ulcers led to pyloric obstruction. Gastro-enterostomy afforded the only complete relief.—Mr. A. R. Anderson mentioned two cases of severe hæmorrhage from duodenal ulceration, which had completely recovered on medical treatment. He only advised operative treatment where medical treatment had failed.—Dr. J. F. Blurton, Dr. W. Hunter, and others also spoke in the discussion.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 15th, Dr. W. Ward-Smith being in the chair.—Dr. A. C. F. Rabagliati read notes on a case of Acute Appendicitis with special reference to causation.—Dr. Ward-Smith showed two cases of Paralysis.—Dr. T. Jason Wood showed a case after operation for Undescended Testicle.—Dr. A. Little exhibited "Kryptop" spectacles.—Mr. F. W. Goyder showed a specimen of Tuberculous Disease of the Third Rib with reference to its symptoms and treatment.—Dr. H. J. Campbell read a paper on Hypnotics. After a few preliminary remarks on natural sleep and the theories regarding it, the most rational of which supposed that the processes of the nerve cells of the higher centres are retracted during sleep, with resulting separation of their arborisations forming a series of blocks to the ready passage of impulses, Dr. Campbell said that hypnotics may be divided into three groups according to their mode of action—namely, (1) bromides; (2) chloral, sulphones, and urethanes; and (3) opium and its allies. 1. Bromides act in two ways: (*a*) as salines, raising the specific gravity of the blood, causing a rise in blood pressure and diuresis; and (*b*) as a depressant to the cells of the central nervous system. Bromides are chiefly of value in cases likely to be prolonged and where there is not likely to be any great call upon the brain for mental activity. 2. Chloral, sulphones, and urethanes have the following points in common: (*a*) power of diffusion into the uninjured cells of the living tissue; (*b*) comparative insolubility in water; (*c*) solubility in fat-like compounds such as brain lipoid; (*d*) no action upon the nerve cells; and (*e*) physiological action with some relationship to chemical constitution. After discussing the various actions of individual members of this group, Dr. Campbell passed on to Group (3) opiates, which depress the sensory nerve cells in the higher centres and also the nerve cells in the sympathetic ganglia. The action of opium was then discussed in detail, and a few words were said about atropine and hyoscine.

Reviews and Notices of Books.

Gegenbaur's Lehrbuch der Anatomie des Menschen. Von M. FÜRBRINGER, O. Ö. Professor der Anatomie, Universität Heidelberg. Erster Band. Mit 276 zum theil farbigen Figuren. Eighth edition. Leipzig: Verlag von Wilhelm Engelmann. 1909. Pp. 689. Price, paper, M. 18; bound, M. 20.50.

THE seventh edition of Gegenbaur's well-known work appeared in 1898, and this, the first volume of the eighth edition, is edited by Professor Fürbringer. The whole work will consist of three volumes. This volume begins with the history of anatomy, and then follow the cellular elements of the body and cell theories, a short account of development, the histology of the tissues, and a general view of the body and its component organs.

The introductory chapter, extending to over 60 pages, contains a most instructive and readable account of the history of anatomy from the ancient Greek period onwards, of the views of Aristotle and the Alexandrian school. Some of the oldest nomenclature comes from this period, and the history of early technical terms is given. Then follow the anatomy of the Middle Ages and the birth or, as it is called, the "Restoration" of anatomy in Italy. This is the brilliant period associated with the names of Sylvius of Paris, Vesalius, Berengar of Carpi, Calcar, Dryander, Mundinus, Eustachius, Fallopius of Modena, Lancisius, Columbus of Cremona, Vidius of Florence and later of the Collège de France (Paris), Botalto, Fabricius, Aranzio, Casserius, Spigelius, and others. Then we come to the progress of the seventeenth and eighteenth centuries, and the period of William Harvey, Vesling of Padua, Riolan, Pecquet of Dieppe and Montpellier, Steno, Lower, Vieussens of Montpellier, Aselli of Pavia, Wirsung, Wharton, Bartholinus, Peyer of Schaffhausen, Brunner of Heidelberg, Willis of Oxford, Borelli of Pisa, de Graaf of Delft, Pacchioni of Rome, Valsalva of Bologna, Santorini of Venice, Poupart of Paris, Douglas, Thebesius, Vater, Winslow, and others, nearly all of whom have their names associated with some part of the human frame. Nor must we forget Swammerdam of Leyden (1627–80), and the linendraper of Delft, Leeuwenhoek (1632–1732), and Malpighi. New impulses came from France through Vicq d'Azyrs, and above all through Bichat (1775 1802). The story is continued down the century, and a most readable account it is. There is appended an excellent bibliography.

The real work begins with the "cell doctrine," or cytology, to which nearly one hundred pages are devoted. The illustrations are both numerous and excellent, and the text deals with cells in their varied relations, structure, and capacities both in man and animals. Then follows a chapter on development, or ontogeny, of nearly two hundred pages. It is, in fact, a treatise in itself on embryology. The schema of development of the spermatozoa in colour is excellent, and so is that of the germ cells. The early changes in the embryo are very fully discussed and well illustrated, and,

as in other sections of the work, there is appended an excellent and useful bibliography.

The third section, on Histology of the Tissues, runs to nearly two hundred pages, and deals with the "Vegetative" and "Animal" tissues. Under the former title is included epithelial and connective tissue, and under the latter muscle and nerve are dealt with, and the relation of the one to the other. The whole section is very well done, and it is profusely illustrated; the nerve endings are very fully described.

In the fourth and last section, which is shorter than the others, we have a general account of the organs and systems of the body and their relative proportions in the adult and during growth. Then the body is treated as a whole, from the point of view of weight, specific gravity, volume, differences due to sex and age; the stages of infancy, puberty and adolescence, and old age, or, as the author terms them, infantia, juvenilitas, virilitas, and senium; and then there follow symmetry of the body and righthandedness. There is appended a very complete index.

We can strongly recommend this work to the attention of anatomists. Professor Fürbringer has worthily carried out the traditions of his great chief and master in anatomy—Gegenbaur.

Inflammation: An Introduction to the Study of Pathology. Being the reprint (revised and enlarged) of an article in Allbutt and Rolleston's "System of Medicine," by J. GEORGE ADAMI, M.A., M.D. Cantab., F.R.S., sometime Fellow of Jesus College, Cambridge; Professor of Pathology, McGill University, Montreal. London: Macmillan and Co. 1909. Pp. 254. Price 5*s.*

Professor Adami's well-known article on Inflammation has become a medical classic, and the publishers have been well advised to publish it separately as a book on the subject, a fact which the appearance of this, the fourth, edition demonstrates. "A knowledge of the inflammatory process is the foundation of all pathology" is an aphorism with which few would venture to disagree. One of the great merits of Professor Adami's treatment of the subject is the admirably lucid manner in which he develops the conception of inflammation as a reactive process rather than as a state. The interesting comparative study of the reaction to injury, from its simplest form in the Protista to its most complex varieties in the vascular tissues of the vertebrata, renders this book most readable as well as instructive.

A detailed analysis of the subject matter is unnecessary in regard to a work so well known, but we may refer briefly to the additions made in this edition so as to bring it as far as possible abreast of recent work. There is an account of the interesting observations of Opie, who has demonstrated the existence of two proteolytic enzymes in the exudate set up by a non-bacterial irritant—viz., turpentine—one being effective in a weakly alkaline medium, the other in the presence of acid. He has further discovered that in the serum of the exudate there may exist an "anti-enzyme" tending to arrest the activity of these ferments. Professor Adami points out that these observations suggest that it is not always wise to perform complete paracentesis in serous effusions, since the loss of the anti-enzyme which they contain appears to entail a greater tendency to suppuration. The work of Bail on bacterial aggression is also discussed. Some years ago both Dr. Ainley Walker and Professor W. H. Welch suggested it was probable that microbes would be stimulated to produce antibodies to combat the protective processes of the body. Bail has demonstrated the existence of such substances, to which he has given the name of "aggressins." They appear to paralyse the protective agencies of the body, so that when given with a sublethal dose of a pathogenic organism they render it lethal. The phenomena of chemiotaxis are discussed at some length in the light of recent work, which tends to explain them upon physical grounds as depending upon changes in the surface-tension in the leucocyte secondary to changes in its constituent molecules, these being brought about by alterations in its fluid environment. The work of Professor J. M. Beattie and Dr. W. E. C. Dixon on the newly-formed capillaries of granulation tissue is referred to. These observers found a primary formation of new capillaries well developed in an incised wound 24 to 36 hours after its infliction, but that these capillaries tend to disappear, being replaced by a second better supported set of new capillaries. Some observations of Carrol upon the effects of replacing a length of artery by a length of vein from the same animal, whereby a marked fibrosis of the latter results, are quoted as supporting Professor Adami's view that there exists a functional hypertrophy of connective tissue which is to be differentiated from an inflammatory overgrowth. Sir Almroth Wright's work on the opsonins is also incorporated and applied to the explanation of some of the phenomena of the inflammatory reaction. Professor Adami sums up his conception of inflammation in the following words: "It is the series of changes constituting the local manifestation of the attempt at repair of actual or referred injury to a part, or briefly, as the local attempt at repair of actual or referred injury."

This book will doubtless survive to several more editions, but we may perhaps express the hope that Professor Adami will see his way to retain the charming preface to the third edition.

Lectures on the Use of Massage and Early Movement in Recent Fractures and other Common Surgical Injuries, Sprains and their Consequences, Rigidity of the Spine, and the Management of Stiff Joints generally. By Sir WILLIAM H. BENNETT, K.C.V.O., F.R.C.S. Eng., Consulting Surgeon to St. George's Hospital and to the Hospital of St. John and St. Elizabeth, and Senior Surgeon to the Seamen's Hospital, Greenwich, &c. Fourth edition. With 23 illustrations. London: Longmans, Green, and Co. Pp. 134. Price 6*s.*

THE credit of recommending in recent fractures the use of massage and early movement belongs primarily to Lucas-Championnière, who has advocated this method of treatment for many years, in spite of the hesitation with which it was received by the great body of the profession and the little amount of imitation with which it was followed. To Sir William Bennett belongs the credit of introducing into this country the methods devised by the French surgeon. Those who compare the attitude of the profession towards the method at the present time with that adopted even a few years ago will not hesitate to acknowledge that this mode of dealing with recent fractures has not only progressed greatly in the extent to which it has been employed in practice, but also in the value of the results which have been obtained.

When Sir William Bennett first brought forward the method it was imagined that he was advocating its employment to the exclusion of the use of splints or of operation where it is usually considered to be needed, but this impression was entirely erroneous. He merely urged, though he urged strongly, that fair consideration should be extended to a plan of treatment which if used discreetly as an adjunct to the methods ordinarily employed, and if modified as circumstances might demand, had been found to be satisfactory in theory and advantageous in practice. The fact that this book has reached the fourth edition, though its first appearance was in 1900, is sufficient proof in itself that there was need for it, and that it has fulfilled the purpose for which it was issued. We have on other occasions expressed our approval of the methods of early movement and massage in fractures, and we are glad to see that this temperate exposition of the principles and practice of the methods has met with so cordial a reception at the hands of the medical men of this

country. It cannot be said that all the details of this mode of treatment are even yet fully established. Progress will undoubtedly be made in the future and every surgeon's personal experience will aid him in devising new modes of application of the method.

Sir William Bennett, after giving a general description, discusses the application of massage and movements to certain special fractures, and he applies these modes of treatment also to dislocations and sprains. The lecture dealing with "Sprains and their Consequences" is especially valuable, for only too often the results of these injuries are unsatisfactory both to the surgeon and to the patient. We would like to commend also the chapter on stiffness of the spine, a condition often proving very puzzling to those who have not specially considered the matter. A valuable collection of skiagrams illustrates the work well.

Manual of Operative Surgery. By JOHN FAIRBAIRN BINNIE, A.M., C.M. Aberd., Professor of Surgery, Kansas State University, &c. Vol. I.: Operations on the Head, Neck, Nerves, Trunk, and Genito-urinary System. Fourth edition, revised and enlarged. With 713 illustrations, many of which are in colours. London: H. K. Lewis. 1909. Pp. 832. Price 14*s.* net.

THE cordial welcome which we extended to previous issues of this book is equally deserved by the present issue. We pointed out when speaking of the first edition that the book was chiefly remarkable for the care shown by the author in confining his account to the most modern surgery, and especially to those methods which have been introduced within recent years. The concentration of the work, despite its inevitable growth, and the rejection of unnecessary verbiage facilitate greatly the use of the volume by those for whom it is really intended—namely, operating surgeons. It is not suited for those whose knowledge of surgery is small, but it must prove of genuine value to those surgeons who wish to see, as it were at a glance, the most modern methods of dealing with disease by operation. The natural tendency of all successful books is to grow, and this exhibits that tendency in a marked degree, for the book before us is only half of the whole work, and yet it is as large as, or even larger than, the volume which formed the first edition. The more carefully the book is examined the greater is the appreciation of the reader at the large amount of material which has been compressed into it. It is safe to say that the work contains more than many volumes of far greater size, and the manner in which it is written has helped to achieve for it the success which it deserves.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 29. Piroplasma Canis and its Life Cycle in the Tick. By Captain S. R. CHRISTOPHERS, M.B. Vict., I.M.S. Calcutta: Office of the Superintendent of Government Printing, India. Price 2 rupees, or 3*s.*

IN his introduction to this monograph the author first gives us the historical data with reference to the piroplasmata, showing their relationship to Texas fever, red-water, tropical piroplasmosis of cattle, that of dogs, horses, monkeys, mules, sheep, goats, asses, and rats. "Heart water" at the Cape is probably also caused by a piroplasma. Naturally the transmission of piroplasmosis takes place by ticks; how this was effected was shown by Smith and Kilborne, who proved that the southern cattle of the United States communicated it to the northern cattle through the bite of the young brood of infected ticks. Subsequently it became clear from the observation of others that the piroplasmata behave differently as regard the exact mechanism of their transmission, either in the case of different species of parasite or when transmitted by different species of ticks, various types of transmission being noticeable. Captain S. R. Christophers describes afresh the piroplasma canis, and gives the complete life-cycle of the parasite both in its mammalian host and in the tick. He first gives the geographical distribution, then the symptomatology, the pathological changes, the morphology of the parasite, and the progress of infection, with examples of casts. He then describes the transmission of piroplasma by ticks, with the general life-history of the latter, after which the facts relating to experimental infection are detailed. Finally, we find an account of the developmental cycle of piroplasma canis in the tick. A valuable bibliography of the subject appropriately closes this interesting Memoir. The work is illustrated by some clearly-drawn plates.

LIBRARY TABLE.

Handbook of Diseases of the Ear. By RICHARD LAKE, F.R.C.S. Eng. Third edition, with 56 illustrations and 4 coloured plates. London: Baillière, Tindall, and Cox. Pp. xii.–248. Price 7*s.* 6*d.* net.—We are glad to see the third edition of this little handbook. It has been thoroughly revised and brought up to date, and without going into an excess of detail it gives a very clear and concise account of the otology of to-day. In comparison with the second edition we notice many changes, most marked, perhaps, in Chapter X., on operations. Here three new illustrations have been added explanatory of the radical mastoid operation, and the letterpress contains additions in the shape of a short account of Kuster's modified mastoid operation and operative procedures on the labyrinth, illustrated by figures. Oto-sclerosis has been given a chapter to itself. In Chapter XIII. there has been appended a short and clear account of the caloric and rotation tests with their significance. An extra coloured plate, "Tympanic Membranes: Pathological Conditions," has been added to those in the previous edition. We notice that Mr. Lake in Chapter VIII. on Chronic Suppurative Disease of the Middle Ear at p. 149 makes the following statement in connexion with the treatment of aural polypi: "It is always well to remember that in soft pedunculated polypi a vigorous use of the syringe will not infrequently rupture the connexion of the growth." This seems to us rather a dangerous advocacy of the aural syringe. We should like to have seen a chapter on the physiology of hearing added after that on the anatomy of the ear, and another on the bacteriology and cytology of aural suppuration. These would have undoubtedly increased the value of this excellent little work, and the next edition will give Mr. Lake his opportunity.

Preventable Diseases. By WOODS HUTCHINSON, A.M., M.D. London: Constable and Co., Limited; Boston and New York: Houghton Mifflin Co. 1909. Pp. 442. Price 6*s.* net.—This is an excellently written and instructive book, apparently designed for the use of the educated layman. And when we say this we in no way mean to suggest that it is a book of "home treatment," for it impresses upon the layman the necessity for sending for a medical practitioner when he is ill. The whole teaching of the work is altruistic from the medical point of view in that it shows how the public may avoid being attacked by the more common forms of disease. Incidentally the matter contained in the book is a perpetual reminder of the fact noted with regard to malaria on p. 296—namely: "There is no such thing as useless or unpractical knowledge. The only thing that makes any knowledge unpractical is our more or less temporary ignorance of how to apply it." Dr. Hutchinson writes in an easy and popular style and his remarks are put in such a way as to make them easy to grasp and to remember. For instance, the informing

chapter on "colds" is headed, "Colds, and How to Catch them," the chapter itself being an excellent discourse upon "colds" and how they may be avoided. The first chapter, called "The Body Republic and its Defence," is as good a description of a singularly complex subject, written for the understanding of the people, as we have ever seen.

Clinical Studies for Nurses. By CHARLOTTE A. AIKENS. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 510. Price 10*s.* net.—We reviewed recently Miss Aiken's "Primary Studies for Nurses," and much that we said of that book is applicable to this, its successor. There is the same uncertainty as to whether the book is meant for the teacher or for the taught. It is not exactly a handbook of nursing, neither is it a primer of medicine, but it is too medical for the former and too superficial for the latter. Nursing details when they are given are good, and we are thoroughly in accordance with most of the following statements on p. 326 dealing with diseases of the eye: "It is important for a nurse to know something of the common diseases of the eye and the disastrous consequence of neglect of them, but it is still more important in connexion with this lesson, that she be able to demonstrate her ability to perform properly the nursing duties in connexion with such patients. No examination or quizzing on the theory of this subject is half as important as an hour spent in testing the nurse's ability to properly evert an eye, administer eye drops and lotions, irrigate the eye thoroughly ....." Except for the carelessness of stating that it is a nurse's duty to evert an eye, instead of an eyelid, this passage is commendable. But the book is very unequal and stands in need of revision. On p. 352, in the directions for poisoning, no warning is given against administering emetics in cases of corrosive poisoning. The price of the work, which is high, might have been reduced by leaving out a number of the illustrations, many of which are useless.

Nisbet's Medical Directory, 1910. London: James Nisbet and Co., Limited. Pp. 802. Price 7*s.* 6*d.*—The present issue is the third annual one of this useful publication. Like former issues, the directory is divided into two parts, Part I. giving the names of practitioners arranged alphabetically without reference to place of residence, and Part II. being a local directory in which the names of practitioners are given under their respective places of residence. These places are arranged alphabetically without reference to geographical position. Thus we find Bolton-on-Dearne, Bombala, N.S.W., and Bombay in consecutive order, which affords a very striking proof of the ubiquity of British medicine. The book is well printed, and from practical experience we know it to be carefully compiled. It is a useful and handy work. It neither gives, nor pretends to give, all the information contained in the larger and older directory. The only drawback that we have found to its use is when referring to a widely-held surname when the initials of the individual required are unknown. Thus the aggregation of all the "Smiths" and "Macs" in one part of the book makes individual identification tedious in a way that does not apply to a work which distributes each group of "Smiths" or "Macs" in territorial sections. But the plan of the book prevents this difficulty from being avoided, and has many compensating advantages, notably its simplicity.

London Pride and London Shame. By L. COPE CORNFORD. London: P. S. King and Son. 1910. Pp. 174. Price 6*s.* net.—This is a collection of sketches which have appeared in various leading London papers. To say that they are journalism is no disparagement, for they are high-class journalism, and few attain to a high standard in this branch of literature. It is not given to everyone to realise at a glance, in a few minutes, the technical difficulties of the pursuits of other men, in which the observer has had no training himself, to conceive the mental and physical powers necessary for their proper performance, and to present the result of his observations in a form free from sentiment and the use of excessive phrase. Mr. Cornford can do all this. We like many of these articles, especially that on football and on yacht racing, though obviously the writer knows nothing of either sport, and admits the impeachment. But honestly the best sketch in the collection is that of a surgical operation, and of that we may claim to judge. The description of the "*mise en scène*" is admirable, but the grasp of the moral factors is better. "..... In this clean white shrine, in which the surgeon is about to pit his skill and science and tried resolution against no less an enemy than death himself, there is perfect quiet and absolute order. There are no instructions issued, there is no need for them. The forces are drilled to perfection. ..... He is perfectly cool and unhurried, and every deft manipulation is characterised by the same unfaltering decision. The various instruments which he requires seem to arise in his hand like magic. There is hardly any effusion of blood. No one says anything at all. The nurses beside the glass tables are all quietly busy, handing this, receiving that, exactly at the right moment." The rest of the account of the operation is better still. Would that the outsiders who occasionally stray in to watch and describe surgical work could do such good justice to the discipline, the intense care, and application which the work demands.

Operative Nursing and Technique: a Book for Nurses, Dressers, House Surgeons, &c. By CHARLES P. CHILDE, B.A., F.R.C.S. Eng., Senior Surgeon, Royal Portsmouth Hospital. London: Baillière, Tindall, and Cox. 1909. Pp. 224. Price 4*s.* net.—The success of modern surgical operations does not depend on the surgeon alone; the intelligence, knowledge, skill, and assiduity of his assistants are almost equally important if the operation is to have the results desired. It is by constant training only that a nurse or house surgeon can be brought to appreciate the importance of the essentials of modern aseptic surgery. The modes in which carelessness or ignorance may lead to a surgical disaster are so many that the greatest trouble in seeing that the assistants know what they have to do and why they have to do it is not mis-spent. On the broad general principles of modern surgery almost all surgeons are agreed. As to the details, there are innumerable differences depending partly on the medical school at which the surgeon was trained and partly on his own personal experience. Therefore we cannot expect uniformity in these minor matters, but neither do we desire it. Progress itself depends on an intelligent application of the general principles and not on the slavish adhesion to individual methods. Mr. Childe has compiled a useful little book which is mainly intended for the use of nurses, though much that it contains is likely to be valuable to students and house surgeons, or even perhaps to surgeons themselves. The nurse is first instructed in the theory of sepsis, antisepsis, and asepsis. Then follows an account of the treatment which it is desirable should be followed in preparing a patient for operation. The next chapter deals with the preparation of the theatre and of the materials and instruments employed. The duties of the theatre sister, nurses, and porters are described. What has to be done when the patient returns to the wards after operation is also detailed, as well as the whole after-treatment and the after-treatment of various complications. The chapters on the

selection of instruments for various operations are well illustrated, and a valuable section is devoted to an account of operation in surgical homes and private houses. There are details in which we may differ from the author, but the directions given by Mr. Childe are always reasonable.

The New Third Appendix to Squire's Pocket Companion. London: Squire and Sons. 1910. Pp. 160.—This little book marks the third of a series of appendices to Squire's Pocket Companion, and also brings up to date the recently published eighteenth edition of the larger Squire's Companion. The first appendix was issued in 1905 and the second in 1906, the third bearing the date of the current year. These appendices have now become a fixed feature of Squire's literary productions, and we believe that a regular demand has been established for them from all parts of the world. They are published primarily in the interests of the medical profession, to whom they are supplied gratis on application. As the matter which they contain is supplementary also to the two books named above they are also sent gratis on application to all who have purchased either the one book or the other. The third appendix is a brief but concise review of the progress of therapeutics and pharmacy from 1908 to 1910. The complete and exhaustive review from 1899 to 1908 is to be found in the eighteenth edition of Squire's Companion to the British Pharmacopœia (published by J. and A. Churchill, price 14*s.* net; post free, 14*s.* 6*d.*). This appendix, like the second appendix, contains three sections, A, B, and C. Section A is devoted to the review of therapeutics and pharmacy, and contains amongst other items of general interest monographs on arsacetin, atoxyl, calcium lactate, mercury atoxylate, novocaine, and paraphenylenediamine. Several of the abstracts of the latest pharmaceutical literature are very interesting, notably one on quinine sulphate, which contains references to the papers read before the Seventh International Congress of Applied Chemistry on the Standards for the Purity of Quinine Compounds, and one on Stovaine, which embraces Dr. Jonnesco's recent improvement in the methods of producing general spinal anæsthesia. Section B deals with the more important of the special pharmaceutical preparations which have been introduced by Squire and Sons to meet the convenience of members of the medical and surgical professions desirous of prescribing in an elegant form some of the drugs mentioned in the therapeutical and pharmaceutical review in the first section. Section C is introduced with the object of giving, in a readily available form, items of information which should be useful to medical men. The subject of solubility is dealt with as thoroughly as the space available will allow. Tables of the solubilities of official and not official substances are given, and the article on Chemical Standardisation of Drugs, which appears in the first section, is here supplemented by a tabulated comparison of the chief standardised potent preparations of the British, French, German, and United States Pharmacopœias. This table has been compiled from the tables in Squire's Companion, eighteenth edition, and the paper on the Standardisation of Potent Drugs and International Agreement with regard to it by Squire and Caines, which was read at the Seventh International Congress of Applied Chemistry. Tables of weights and measures, and a comparison of the metric and imperial weights and measures are also included, and with an authoritative article on standardisation make up a thoroughly valuable little book.

THE Paris Academy of Medicine has elected M. Lucet to be a member and M. Delagénière of Mans and M. Monprofit of Angers to be corresponding members.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXIX., No. 6. London: Cambridge University Press. March 8th, 1910. Price 7*s.*—The contents of this number of the *Journal of Physiology* are: 1. Some New Forms of Apparatus for the Analysis of the Gases of the Blood by the Chemical Method, by T. G. Brodie, M.D., F.R.S., from the Physiological Laboratories of the London School of Medicine for Women and the Brown Institution, University of London. 2. On the Relation between the Physical, Chemical, and Electrical Properties of the Nerves: Part II., The Tissues Composing a Nerve Trunk, by F. O'B. Ellison, from the Physiological Laboratory of St. Mary's Hospital Medical School. The estimations were carried out on the medullated (median) and non-medullated (splenic) nerves of the horse. The sections were made from specimens embedded in celluloidin. The average percentage composition of the medullated nerve was found to be—connective tissue 63, medullary sheath 28, axis cylinder 9; of the non-medullated nerve—connective tissue 61, and nerve fibre 39 per cent. 3. On the Relation between the Physical, Chemical, and Electrical Properties of the Nerves: Part III., Total Ash, Sulphates, Phosphates, by N. H. Alcock, M.D., D.Sc., and G. Roche Lynch, from the Physiological Laboratory, St. Mary's Hospital Medical School. In the horse the ash of the median nerve is 0·985 per cent. of the original weight of the nerve; the sulphates, 0·0110 per cent.; and the phosphates, 0·768 per cent. The ash of the splenic nerve weighs 0·914 per cent.; the sulphates, 0·0646 per cent.; the phosphates, 0·349 per cent.; the ash of connective tissue, 0·549 per cent.; the sulphates, 0·0813 per cent.; and the phosphates, 0·0797 per cent. 4. The Nature of Oxyhæmoglobin, with a note on its Molecular Weight, by J. Barcroft, M.A., B.Sc., and A. V. Hill, B.A., scholar of Trinity College, Cambridge, from the Physiological Laboratory, Cambridge. The amount of heat given out when one gramme of hæmoglobin unites with oxygen is 1·35 calories. 5. Improvements in the Technique of Blood Gas Analysis, by Joseph Barcroft, M.A., B.Sc., and Ff. Roberts. 6. Contributions to the Physiology of Marine Invertebrates, by H. E. Roaf, M.D., M.Sc., University of Liverpool. Amongst the animals whose digestive fluids were investigated were Actinoloba dianthus, Echinus esculentus, Asterias rubens, Pecten opercularis. In all instances digestion appeared to commence in the presence of acidity which was subsequently exchanged for alkalinity. 7. The Oxygen Capacity of the Blood after Hæmorrhage, by C. Gordon Douglas, B.M., Oxford. 8. Quantitative Researches on the Summation of Inadequate Stimuli in Muscle and Nerve; with observations on the Time Factors in Electric Excitation, by Lucas Keith, Fellow of Trinity College, Cambridge, who shows that for each excitable tissue there is a characteristic time factor involved in excitation. This time factor varies with varying conditions of temperature and the nature of the salts in the surrounding fluids. 9. Cardiac Metabolism of Alcohol, by Philip Hamill. The author, who writes from the Pharmacological Laboratory, Cambridge, finds that the heart is capable of metabolising alcohol; he describes a method of estimating alcohol in dilute solutions. 10. Creatin Excretion in the Bird and its Significance, by D. Noel Paton, Physiological Department, University of Glasgow. Paton finds that in the urine of several birds—goose, duck, and hen—creatin takes the place of the creatinin of mammalian urine, and that as this is an end-product of avian muscle the amount excreted constitutes a measure of the muscle catabolised. This number also contains the

Proceedings of the Physiological Society for Dec. 11th, 1909, and the title-page and table of contents for Vol. XXXIX., 1909-10.

Social Diseases.—A new periodical with this title made its first appearance recently in the United States. It carries the sub-title "Report of Progress of the Movement for their Prevention." From the "foreword" of this first issue we learn that it is a tentative publication, to be repeated quarterly by one of the 13 societies organised in the United States for the purpose of preventing or limiting the spread of venereal diseases, and it has in view the federation of these local independent societies and the production of concerted action between them. It is likely that this project will take shape at the forthcoming meeting of the American Medical Association at St. Louis in June. The present issue of *Social Diseases* contains an address by Dr. Prince A. Morrow, well known as a pioneer in the movement, before the American Society of Social and Moral Prophylaxis, and papers by Dr. Daniel R. Hooker and Dr. Robert N. Willson. The aim of the whole may be summarised in the following phrases from Dr. Morrow's address: "More protection for young women who are too often made professionals through seduction, fraud, or force; less indulgence for the men who in robbing them of their virtue infect them with disease." And again: "Its object is not to make prostitution safe, but to prevent the making of prostitutes."

The Edinburgh Medical Journal.—In the March number Dr. John Robertson deals with the milk-supply of large towns, and points out that the chief reforms called for concern the premises of the producing farmers; and Mr. A. Forbes Mackay contributes some notes on health in the Antarctic region, treating of frost-bites and snow-blindness. A paper by Mr. William Guy, Dr. Alexander Goodall, and Dr. H. S. Reid on the blood pressure in anæsthesia, discusses the asphyxial element in gas narcosis, both with and without ethyl chloride; this undesirable factor can be prevented by previous inhalation of oxygen. Mr. W. G. Porter records some cases of laryngeal tumours and describes in detail his method of inducing local anæsthesia for their removal.

The Medical Chronicle.—A paper by Dr. D. P. D. Wilkie in the March issue of this journal deals with prophylactic measures against post-operative peritonitis. The writer concludes that the combined use of a vaccine of B. coli and of nucleic acid enhances the power of resistance to this affection, in which the organism named plays a leading part, and notes that there may be advantages in performing certain abdominal operations in two stages, since the first may stimulate reaction by the irritation produced, and so lessen the dangers of the second. Mr. D. Lindley Sewell writes on Bárány's tests for labyrinthine affections, which are carried out by means of stimuli inducing nystagmus. He considers their diagnostic value as proved in some cases, though it would be premature to give a definite opinion as to their trustworthiness.

The Birmingham Medical Review.—Recent issues of this review contain a series of papers on the sanatorium treatment of tuberculosis and the cases which are suitable for this procedure. It is interesting to note the degree of reliance apparently placed by all the writers in the doctrine of auto-inoculation. In the January number Mr. W. Duncan Lawrie emphasises the importance of the abdominal muscles in maintaining the health of the individual. He believes that chances of longevity are in inverse proportion to the girth of the abdomen, and advises the use of certain simple exercises to strengthen the muscles and improve the figure.

New Inventions.

SIGHT-TESTING IN SCHOOLS.

A SUGGESTION FOR NEW TEST TYPES.

IN the schedule of medical inspection issued by the Board of Education it is stated that the testing of eyesight should be undertaken for the first time at the age of about six years. Owing to the fact that children do not come to school at so early an age as they used to, and that the teaching of reading is postponed to a later age, it will be found that when children 6 or 7 years old come up for medical inspection a certain proportion will find great difficulty in reading the ordinary Snellen's test-type cards. With many children who are merely backward a card devised as nearly as possible in accordance with the ordinary reading cards and type used in the schools will be found extremely useful.

Mr. W. Lloyd Edwards, school medical officer and deputy medical officer of health at Barry, Glamorgan, writes to us as follows: "As the object of the school medical officer is to test sight and not the reading powers of the child, the task should be made as easy as possible, as by so doing much valuable time will be saved. Children are first of all taught reading from small letters and not from capitals, whilst most test types consist of capitals only. Small letters (not capitals) should therefore be used for sight testing. It is also necessary to choose the letters which are best known to the children, avoiding the small b and d, which are so often mistaken for one another by children. The medical inspector or the nurse should also be familiar with the 'phonic' method of teaching reading, in which the child does not give the name of the letter but the sound value of the letter. The best letters for use on a Snellen's test type card such as I have indicated would be:—p, r, a, t, o, c, f, g, h, m, n. With regard to those children who are either mentally defective or in knowing their difficulty in knowing their letters Landholt's 'broken-ring' optotype is far preferable. Dr. Marcus Gunn[1] stated at the Toronto meeting of the British Medical Association that for the testing of the sights of recruits the use of Snellen's types has its disadvantages, and recommends the use of the 'broken-ring' optotype. But to get the full value of the 'broken ring' for rotating the ring' some device recommended. The test card is to be work and metal boys in the woodwork centres at the Barry Schools constructed a simple little apparatus which does well for this purpose. A wooden disc 7 inches in diameter is attached to a board with pulley intervening. The wooden disc has slots so as to carry 7 cards of the same diameter. Each of these cards has a 'broken ring' of the various sizes $\frac{6}{60}$ to $\frac{1}{6}$. The pulley by means of a cord is attached to a little crank handle. In this way it is possible to revolve the 'broken ring,' taking off each card when finished with and using a smaller one. The testing of types, therefore, can be made a kind of kindergarten occupation. The school medical officer of Tasmania modified the Landholt's optotype by giving 8 different positions of the 'broken ring' on the test type card instead of 4, but I think my plan is preferable.

"My ideas in these matters have been carried out for me by Messrs. F. Davidson and Co., Great Portland-street, London, and these devices will, I think, be found very useful for schools."

[1] Brit. Med. Jour., Dec. 29th, 1906, p. 1850.

THE LANCET.

LONDON: SATURDAY, APRIL 2, 1910.

The Lessons of a Great Hospital.

THE history of a great hospital is in miniature the history of the medicine of the country to whose needs the charity ministers. In the foundation of a hospital we have a public recognition that the institution is needed. That recognition has been at first in most instances very small, but none the less the first receipt of public money is a formal acceptance by the public of the claims of the sick poor upon their healthier, and especially upon their more affluent, neighbours—claims which are enforced by common-sense no less than by loving-kindness. In the passage of the hospital through its various stages of development, in the growth of its buildings, in the more comprehensive nature of its services, and in the larger intimacy which it comes to enjoy with other eleemosynary work and with every conceivable scheme for social betterment,—in these things we have a public acknowledgment and a tangible proof that the science of medicine has become an integral part of the scheme of life in all its phases. This recognition, which is more sympathetic and more widely accorded in proportion as the State progresses in the march of civilisation, derives a new interest when the hospital affiliates to itself a medical school. The foundation of a medical school is a movement especially designed to accentuate the value of the relations between those who practise medicine and those who at all hours and in all ways call the service of medicine to their assistance.

"A skill in the practice of physic or surgery," said Sir WILLIAM BLIZARD, that veteran of the London Hospital who served the institution as surgeon for nearly 60 years and was joint founder of its medical school, "cannot be acquired without an attendance at an hospital. But that degree of skill which can be acquired from an attendance on hospital practice, without a proper knowledge of principles, as it is the result of mere imitation, must be comparatively very small. It is necessary, therefore, that principles be studied. But the principles of Medicine and Surgery cannot be taught but by means of lectures publicly read. The experience of learned men from the beginning of science to the present time has proved this to be the only true and effectual method of instruction. By means of these the several discoveries that have been made respecting any art or science are properly brought together and preserved, and new ones continually added, which otherwise might in time be lost and forgotten. But lectures on the principles and practice of Physic and Surgery cannot, consistently with the advantage of the student respecting his improvement, be properly given in any other place than the hospital which he attends."

The position of the lecture in the educational scheme is, of course, much altered since the days of Sir WILLIAM BLIZARD, and to him the word no doubt stood for the whole of the organised instruction which the student now receives at a medical school. He spoke the phrases which we have quoted more than 120 years ago, when physiology and pathology were in their infancy and when the only professional education which a medical student could possibly receive was through the medium of systematic lectures, the principles of which could be demonstrated by clinical examples in the wards. But what he says holds good to-day. It is impossible to divorce professional medical education from actual practice among the sick, and it is only in hospitals that the clinical facilities can be obtained. On the other hand, the benefits received at a large general hospital from the coöperation of a medical school are very real—a side of the question which too many people are ready to overlook.

The history of the London Hospital,[1] as set out in an interesting book which has just reached our hands, illustrates in a very apt manner these various points. Mr. E. W. MORRIS shows how the hospital had its origin in the charitable feeling of seven London citizens who were inspired by a medical man, JOHN HARRISON, and none of whom had any large fortune by means of which he could at once transform a great idea into a great actuality. The London Hospital was founded under the title of the London Infirmary, and had as its object the treatment of the sick poor of Aldgate and the adjoining riverside. The seven founders could give time, energy, and knowledge of the evils they wished to counteract, but they could give but little money. The date of the foundation, 1740, was a period of extreme sickness in London. The population of the metropolis at that date was about three-quarters of a million, but in 1740, over 30,000 persons died, of whom 4000 died from "fever" and 2725 from small-pox. An extremely severe winter aggravated the miseries of the sick poor, though in all probability it had a beneficent effect on the spread of typhus fever, while the price of wheat at Michaelmas being 56*s.* per quarter spelt semi-starvation for hundreds. The glaring misery produced by these conditions of hunger and epidemic disease stimulated HARRISON and his group of friends to some concerted action, however small, that should act as a remedy, however local and partial, and in the foundation of a dispensary they had before them successful examples set in three other quarters in London. So this small group of citizens met first in the "Feathers" tavern and then at the "Baptist's Head" tavern in Aldermanbury, and resolved to take a house "near the Dog Bar, for £16 per annum, with liberty to quit the same at six months' notice," and open an infirmary. Such was the beginning of the largest hospital in the metropolis, and when its pioneers met after taking the house, after paying £15 for furniture "for the doctor's, surgeon's, apothecary's, manager's, and patients' rooms," and after hiring a man and a woman as caretakers, there remained one shilling in the treasury. And now the hospital has 922 beds, its elaborately organised out-patient department is enormous, its special departments are as numerous as the needs of the public and the growth of science have nowadays and between them made necessary, it has a nurses' home and institute attached to it, and a large medical college. The two caretakers of "the house near the Dog Bar" are represented by a selected crowd, over one hundred in

[1] A History of the London Hospital. By E. W. Morris. London: Edward Arnold. 1910. Pp. 296. Price 6*s.* net.

number, of receiving-room officers, resident accoucheurs, house physicians, house surgeons, clerks and dressers, as well as a veritable army of nurses. Its income is counted in tens of thousands, its needs are counted in larger sums—and 170 years ago it had a shilling. To our mind this wonderful story can fairly be taken as a definite picture of the growth of medical science. The hospital, and there are, of course, others of which exactly an analogous story could be told, originates in the practical desire of a medical man to treat the sick poor. The movement is supported by the public, and as the beneficent results become manifest the work spreads and the support becomes larger. Then students are attracted, the school is founded, and the conjunction between medical education and hospital practice is established. And so the great general hospital becomes the expression of medical science in its highest, a blend of devoted service, of strenuous work, and of difficult learning.

We do not follow Mr. MORRIS'S book in detail. It has been, as he says in his preface, and as anyone who reads it can see, a labour of love with him to write it, and we commend it heartily both to the public and to the medical profession as not only a story of a great charity very well told, but also as a parable illustrating the growth of medicine in the course of 170 years. He devotes, however, a chapter to the future of voluntary hospitals, concerning which a word must be said. He discusses here a problem which is now much exercising the minds of medical men, and, indeed, of most of the thoughtful denizens of great cities, where poverty and sickness must necessarily abide in close proximity to wealth, to the machinery for the acquisition of wealth, and to the amenities for the distribution of wealth. All are asking themselves whether, in view of increasing expenses, the future of voluntary hospitals is secure. Mr. MORRIS'S view is that State aid will come to the rescue if voluntary subscriptions fall off, but his hope is that it may come without State control. He imagines a condition of things under which a voluntary hospital, brought by some inclusive scheme into line with Poor-law infirmaries, should receive from the State an addition of a percentage to its subscriptions or an annual grant depending upon the quality of its work, while the governors, chosen from among the supporters of the charity, should retain the full responsibility which they at present enjoy. We find it difficult to believe in any contribution from the rates towards the work of a hospital in return for which there would not be demanded some right of representation in the management of the charity. Not only do we find it difficult to believe in such a contribution being made, but we think that, if and when the public is taxed for the purposes of a hospital, it must have a voice in the control of the hospital. The whole subject, one of immense importance, is sure to come under public consideration when legislation ensues upon the Reports of the Poor-law Commission; and the advocates of the maintenance of the voluntary system must be awaiting, like ourselves, with keen interest the time when the political situation will permit of the introduction of such legislation. Whichever report is adopted ultimately as the basis of a new system of administration there is likely to follow, sooner or later, a development of institutional treatment paid for by the rates which must affect the position of voluntary hospitals in London and in the provincial towns where they exist. Such development may relieve the hospitals of patients who can more appropriately be treated elsewhere, and may assist such institutions in some instances by securing payment for patients for whom the rates should properly be responsible. It may thus leave a wider and truer field of usefulness open to the hospitals and yet may appear to narrow that field with the effect of diminishing the flow of subscriptions, since many persons finding themselves paying higher rates in order that there may be better institutional accommodation for the sick poor may become unwilling or unable to tax themselves voluntarily for a kindred purpose.

The State of the British Army.

FROM the annual report[1] on the British army recently issued by the War Office we learn that our Regular Army was on Oct. 1st last fully up to its established strength of 256,000 of all ranks; that the Army Reserve was practically up to its establishment of 137,000 men; but that the Special Reserve was still 20,000 short of the 90,000 required, and the Territorial Force still 43,000 below its establishment of 316,000. Of the Regular Army about 128,000 are serving at home, 78,000 in India, and 47,000 in the colonies. The majority of recruits during the last three years have enlisted for a seven-year period. In 1904 and 1905 nine years was the usual length of service, and in 1902 and 1903 three years; about 1500 men in each year are recruited for a long service period of 12 years; and in the year under review nearly 20,000 out of 37,000 enlisted for seven years. The transfers to reserve on completion of service, numbering 17,690, constitute the principal item of decrease in army strength; 2185 men were invalided, and 3573 were discharged after 12, 18, or 21 years' service. The total decrease, 35,124, is markedly less than in any of the years that have elapsed since the South African War. During the year under review the number of recruits enlisted was 3338 less than during the preceding 12 months.

Since the South African war we have heard a great deal about the difficulty in getting recruits of the right stamp, men physically sound and of good character and fair education. It has been hinted that the physical standard has in some cases been lowered in order that the numbers might be maintained; that the present-day soldier is, at any rate on joining the army, an ill-grown boy; and that many of these lads have to be discharged within a few months, as not likely to become efficient soldiers. There has been a considerable amount of truth in this, and yet the position of things during the past year, in which the number of recruits enlisted has been distinctly less than in any year since the war, is to be regarded as undoubtedly satisfactory, for the reason that the wastage has been diminished notably. The improvement has occurred all round; the losses by death, by invaliding, by purchase of discharge, and by desertion have all been less; so that although the recruits joined have been considerably fewer than in the previous year, the effective

[1] General Annual Report of British Army, including Report on Recruiting, for the Year ending Sept. 30th, 1909. War Office, 1910.

strength on Oct. 1st, 1909, was 241,422, as compared with 239,292 on the same date in 1908. On the whole it is considered that the improved conditions of service in the army are now being generally recognised, and that an increasing proportion of recruits realise that they are better off in the army than out of it. This state of things has had the further good effect of enabling the recruiting authorities to raise the physical standards on enlistment, and to pick and choose their material; for all infantry of the line the minimum height has been raised to 5 feet 4 inches, and we are told that this has not been the case previously since 1889. The percentage of rejections for want of physical development, 6·70, has been lower than in any year during the quinquennium except in 1908 (when it was 6·41), which seems to show that the physical condition of that part of the population that presents itself to the recruiting officer is, at any rate, not deteriorating at the present time. Moreover, the proportion of young soldiers invalided during their first two years of service has notably diminished: in 1904–05 it was 21 and 16 per 1000 for the first and second years of service respectively; it has come down to 12 in the first and 13 in the second year in 1908–09.

A very important section of the present report deals with the provision of employment for time-expired and reserve soldiers. The National Association for Employment of Reserve and Discharged Soldiers does a good work in bringing employers and would-be employees together, and in some instances county associations have voluntarily rendered help. Many Government departments, such as the War Office, Customs, Office of Works, and Post Office, also the police, and the great railway companies give employment to discharged soldiers of good character; it is gratifying to learn that in 1909 there were 20,906 ex-soldiers employed in the service of the different railway companies throughout the kingdom. This question is a most important one from the point of view of the well-being and health of the community. A certain number of ex-soldiers are undoubtedly ne'er-do-weels, but a large proportion are steady, respectable, well-educated, and disciplined men, fit for many positions of trust. A labour exchange for such men is needed; the present rather numerous agencies and societies somewhat overlap and interfere with each other. We should welcome a comprehensive scheme by which, for instance, the boy, leaving school at about 15, might pass through post-office or messenger work for three or four years; then enter the army for five or six years or more; then pass to the police, post-office, railway or other permanent employment. This applies to those who are not skilled workmen, belonging to the ordinary labouring class, that is nowadays fairly well educated, but, as this report says, "with little, or more often no knowledge of any skilled trade." The great majority of soldiers who are of this class, when they possess the asset of "good character" have admirable qualities within their own limitations, and are capable of rendering excellent service in return for employment which enables them to gain gradually the requisite technical knowledge. The promise of such employment on leaving the army should, moreover, stimulate many men to form good habits of living whilst they are still in the service.

Patients and their Friends.

A STRANGE disturbance of the peace was reported recently from Crewe. An outbreak of diphtheria has occurred in that town, and it became necessary to remove a number of children to the isolation hospital, to which their friends were denied admittance. Resenting exclusion, these ardent spirits are reported to have attempted to storm the walls of the building in their anxiety to visit their relatives, until, finally, police assistance had to be invoked to induce them to depart. The episode suggests a problem of practical medicine with which the practitioner is constantly being confronted, the decision as to whether a certain patient should be allowed to receive visits from his friends. In the case in point the custom which is almost universal in fever hospitals, and that rightly, appears to have been followed. We do not imagine for a moment that any parent was refused access to a dying child, for when once the last chance of life seems to skilled eyes to have been lost the law of common humanity overrides the law of common sanitation, which insists upon the isolation of a patient whose disease constitutes a source of danger to his neighbours. All intelligent people having to nurse a case of infectious sickness in a private house make arrangements by which not more than one or two persons shall come into contact with the patient, and the like self-denying ordinance, if so it can be called, is enforced upon the friends of infectious patients who are being cared for at the public cost.

But the problem of visitors to the sick covers a far wider ground than the risk of infection, for it is the effect which the friends will have upon the patient rather than that which the patient will exercise upon the friends that the practitioner has generally to take into consideration when he is confronted with the impatient request for admission to a sick-room. In hospital the matter is fairly simple. For obvious administrative reasons friends of patients are only admitted during certain visiting hours except when their names are upon the list of those dangerously ill or when a special grace for some particular reason has been granted. Although no one grudges the hours which the sick poor are thus enabled to spend at the bedside of their nearest and dearest at a time of real distress, yet all medical practitioners who have been hospital residents can probably recall instances where they would have given much for the authority to forbid absolutely the access of friends to some particular patient. Indeed, the sisters in charge of not a few children's wards, lovers of children though they were, have been known to declare that they would like to see a complete abolition of visiting hours, so far as their patients were concerned. This was not only on account of the risk of the introduction of infection, which is indeed almost in itself a sufficient cause to exclude visitors from children's wards, but because the hour following the departure of the parents is generally spent in loud lamentation by a number of infants, who, before the mothers' arrival, were in a state of blissful forgetfulness of their very existence. The exclusion of parents from the children's wards in ordinary circumstances may seem brutal, but we think it will be

supported by anyone who takes the trouble to analyse a series of hospital temperature charts of convalescent children and to note the number of unexplained rises on the evenings of visiting days. We believe, indeed, that some hospital boards of management have been bold enough to forbid the routine visiting of children's wards. On the other hand, we imagine that in certain instances the visit may have an excellent educative influence upon the parents themselves, who have the opportunity of seeing what cherubic little people their own children appear when properly clean and tidy, in contrast to the dirty, uncared-for condition into which too many of them are allowed to drift at home. But there are other hospital visitors besides those to the children's wards whom it would be desirable oftentimes to prevent from visiting their sick friends. We have in mind those who, upon receiving the report of the serious illness of a relative in hospital with the consequent permission to visit him at all hours, hasten to his bedside attired in the funereal "blacks" which do duty upon all solemn occasions, and sit through the night assuring him at intervals that his sufferings will soon be over. Of course, if the patient be really destined for eternity it would be meddlesome to seek to deprive him of the consolations customary to his condition and station, but in those not infrequent cases where a chance of life remains we are assured that the suggestive influence of the mourners-apparent may determine the chances against the sick man, and we should applaud the action of a medical officer or nurse who banished the croakers from the ward. True, it is a difficult and delicate matter to judge when such an exercise of authority would be justifiable, but the practice of medicine largely consists in the formation of difficult and delicate judgments, humane no less than scientific.

In hospital practice, however, in this as in other matters, it is generally possible to take the best course for the patient, as the staff and governors are in great measure the masters of the house and dictate the situation. But in the private practice of medicine the position is reversed, and although a majority of people asking a physician's advice concerning the desirability of disturbing his patient will abide sensibly and loyally by his decision, yet most family practitioners have met the cantankerous person who refuses to be browbeaten, and insists upon going to cheer up the invalids when they themselves, perhaps, have actually requested the medical attendant to save them from the visitations of such impetuous friends. On the other hand, it must happen sometimes that although medical prudence would desire the patient to be left alone with a single skilled attendant, the enforced absence of some dear friend or relative may cause such fretfulness and mental distress that it is better to sanction admission to the sick room and stand the chance of the patient becoming unduly "excited" as a consequence. Indeed, the constant presence of wife or husband as a supernumerary nurse during a severe illness, whether it be at home or hospital, may not only help to give comfort and confidence, but their cheerfulness and encouragement may have as powerful a suggestive effect in helping the sufferer through his illness as the croaker may have in the opposite direction. Probably not a few of our readers could tell tales of devoted attendance through many days and nights of a seemingly desperate illness by friends who resolutely refused to let their dear one die. The physician could want no better adjuvant to his ministrations than such a presence at the bedside, and it does not require a profound knowledge of human nature to judge whether a patient is deriving good or harm from the personalities of those who are about him. When the practitioner finds that one is doing harm we conceive it to be his duty to speak straight out to the unwitting offender, as tactfully as he may for his own sake, but none the less plainly. "Friends should associate friends in grief and woe," it is true, but not when one lies sick unto death and the other is a prophet of evil, or a prater, or a bore.

Annotations.

"Ne quid nimis."

ARMY MEDICAL UNREST.

FOR some time back there has been a feeling of uneasiness and uncertainty amongst the officers of the Royal Army Medical Corps as to their future prospects by the adoption of the system of promotion by selection. It is not our present purpose to criticise or even inquire into the ways and means by which selections to the higher ranks are determined as long as due weight is accorded to seniority in the Army List, and as long as capable men of good record and with nothing against them are not superseded by a junior for whose superior capability there is no evidence. Such supersession when carried out, while rewarding the officer promoted, is a grave injustice, pecuniary and otherwise, to those whom he supersedes, as they will probably lose all prospect of further advancement, having to retire either on account of age or a fixed time limit of tenure of their appointments. The Royal Warrant may be termed the Magna Carta of the Royal Army Medical Corps, as it lays down the rules and regulations affecting the pay, prospects, and promotion of its officers, and may thus be considered the basis of agreement between the civil practitioner when he joins the medical department of the Army and his Sovereign who actually signs his commission. In a corps of nearly 1200 officers the prospects of reaching the highest ranks are small, but to allow of the chances being fair and more evenly distributed the Royal Warrant distinctly lays down that the surgeon-generals must retire on reaching the age of 60. This provision has been observed until the recent appointment of the Director-General of the Army Medical Service. Surgeon-General W. L. Gubbins, M.V.O., has been retained on the Active List, notwithstanding he was 60 years of age last July, thus contravening the Royal Warrant and stopping promotion. We do not mean to imply that this officer is not a capable one or that his choice is not amply justified by his record. We have every reason to believe that he will discharge his duties in an admirable manner. But there is no getting out of the fact that the authorities have not acted up to the spirit of their regulations. The consequences of this promotion will have far-reaching effects. The very fact of making such a promotion signifies that the other eight surgeon-generals may not obtain further advancement, while it supersedes one surgeon-general of exceptional claims. The personal argument, however, we do not propose to use. What is important is that if merit and distinguished service are not rewarded in the

highest ranks the prospects of the juniors in the service cannot but suffer. The Royal Army Medical Corps is in an exceedingly strong position now, a position at which those who recall the times not far gone by must almost wonder. Surely it is unwise to endanger the chances of recruiting officers from the best material. But this is what may happen if young men are told that they cannot rely upon the Royal Warrant under which they agree to serve.

THE FREE FEEDING OF LONDON SCHOOL CHILDREN.

A REPORT came before the newly elected London County Council at its first meeting with regard to the administration of the Act under which meals are provided for necessitous school children. It may be remembered that in December last the Finance Committee of the late Council noted with some alarm a large increase in the number of meals supplied, and referred in strong terms to an item of £26 as the total sum likely to be recovered in one year from parents against an expenditure upon free meals of nearly £70,000. The Finance Committee thought the Education Committee in its circulars to parents did not lay sufficient stress on the obligation of the local authority to obtain reimbursement if possible, and expressed the opinion that "recovery of cost should be the rule, not the exception."[1] The Education Committee now agreed to strengthen the wording of the circular letters, and also to modify in some of its details the procedure by which children are put upon the feeding lists, but in regard to the main criticisms of its policy the Education Committee said the guardians of the Council's purse laboured under a complete misapprehension. The estimate of the amount to be recovered from parents was necessarily small because the Council had availed itself only to a very limited extent of the power to provide meals for non-necessitous children whose parents were willing to repay the cost. The great majority of the children fed were really necessitous, and therefore the recovery of anything more than a small amount could hardly be hoped for. Without exception members of the care committees had expressed the opinion that only in rare instances was there any possibility of obtaining repayment, and even in those cases it would be difficult to prove sufficiency of means to the satisfaction of a magistrate. Although the number of meals provided showed a large increase (from 4,546,000 in the last financial year to 7,702,000 in this) the number of children fed had only risen by 2000. The reason for the disparity of the figures was that meals had been given during the summer as well as in the winter, and more meals had been given per head. Since Christmas the number of children fed weekly has been about 52,000.

A STANDARD MOTOR WARNING.

IT seems desirable in the matter of methods of warning in our thoroughfares that some uniform system should be adopted by motor vehicles. As things stand, there is nothing apparently to prevent the most fantastic methods of alarm being adopted, and the result may be irritating if not occasionally disastrous to the public. In some instances the alarms are unnecessarily exaggerated and weird, and when a more or less foreign noise is suddenly released the effect may well give a shock to nervous persons. At first it seemed to be a tacit understanding that the single reed horn was to be identified with the motor, but the success of this led cyclists to adopt the same means of alarm so as to ensure (on false pretences) a clear road. Next a pair or even three reeds were adopted, yielding a more or less harmonious combination, then came the shrieking syren, and again, a contrivance which sounded progressively up and down the principal notes of a major chord. Some retain the old bell introduced many years ago by the cyclist, and one curious device produces a not unpleasing noise resembling a loud chuckle. Now all this is confusion and Babel and a source of real irritation, and surely there should not be any question of confusion arising in connexion with signals given to warn the public of danger. Is it unreasonable to suggest, therefore, that there should be some official control exercised over the means adopted in motor traffic for sounding a warning note, and that a standard method should be insisted upon? Let it be a bell, a horn, a syren, a whistle, or what we will, but let only one uniform distinctive kind, instead of all sorts and conditions, of alarm be permitted for motor vehicles. There is nothing impracticable further in the suggestion that bicycles should be restricted to a distinctive alarm also. It is a common experience now that some cyclists delight to sound a motor horn and frighten people unnecessarily. Such a silly nuisance should be suppressed.

[1] THE LANCET, Dec. 18th, 1909, p 1843.

PRACTICAL STERILISATION BY MEANS OF ULTRA-VIOLET RAYS.

THE germicidal action of the ultra-violet rays has been referred to more than once in these columns, and there seems to be little doubt that this action will shortly be made available for the purposes of practical sterilisation. In what exact way the ultra-violet rays act is not certain, but one view is that they produce ozone. Whatever the nature of the action may be, it seems clear that their application for the purpose of sterilising articles intended for human consumption will eliminate the objection to the use of chemical antiseptics, the effect of which upon the human organism may be harmful. In an interesting paper which has reached us on the Sterilisation of Water by Means of Quartz Lamps, by Dr. Max von Recklinghausen, it is stated that work on a very large scale has lately been done in France on this subject, and has developed the entire system of sterilisation of different liquids used for alimentary purposes, based on the effect of the ultra-violet rays created in Cooper Hewitt lamps made from transparent quartz. The chief work in this line has been done by Professor Henri in the Physiological Laboratory of the Sorbonne together with Dr. André Helbronner, who coöperated with Dr. Max von Recklinghausen with a view to developing an entire sterilising system of the type described. The preliminary work was done by studying the action of the ultra-violet rays on different types of microbes and the influence of the different wave lengths. Dr. Roux of the Institut Pasteur, where a good many of the experiments were made, presented to the Académie des Sciences some of the work done by the above cited gentlemen. Technically speaking, the results so far have been the development of a small water steriliser for hospital use whereby 132 gallons of sterile water are produced per hour from ordinary city water by means of one Cooper Hewitt lamp, type "Silica," absorbing three ampères at 110 volts. Within a short time a very large sterilising outfit, based on somewhat similar ideas, will be running, which will sterilise 3500 cubic feet of water per hour, this being large enough to treat the entire water-supply of a town of about 10,000 inhabitants. The installation of the lamp, it is stated, is a matter of no difficulty, all that is necessary being to connect up to the terminals provided in the dome top of the apparatus and to make the adjustment necessary for the voltage of the particular circuit. In order that the supply of water delivered from the apparatus may be absolutely sterile, or sterile to

any required degree, it is necessary that there should be means of dealing with the various water pressures met with in different districts. To accomplish this purpose the inlet pipe is fitted with an adjustable valve of special pattern which can be readily set, so that when full open the delivery from the apparatus does not exceed the quantity specified, this, in the case of requirements being for absolutely sterile water, being 132 gallons per hour. The water enters the chamber formed by the outer cone with a swirling motion. At the top of this cone it overflows and finds an outlet at the bottom of the inner cone, up which it rises and flows out at the discharge pipe. The swirling motion is maintained during the complete passage of the water through the apparatus, in order that it may be thoroughly stirred up and all microbes presented to the action of the light, the water coming under its influence on two distinct occasions. Draining cocks are provided on the apparatus to enable it to be thoroughly emptied should circumstances arise whereby it would not be used for a considerable time. Not only does this system provide, in the case of the apparatus under discussion, a continuous supply of sterile water available within five minutes, but the water or any other liquid that may be treated is unaffected as far as taste is concerned, as it retains all natural gases and salts in solution. The work of Professor Henri, Dr. Helbronner, and Dr. Recklinghausen has also been directed towards the complete sterilisation of milk, and this they have also accomplished. The apparatus for this purpose is more difficult to build than that for the treatment of water. Water is very transparent to ultra-violet rays; milk, however, is practically opaque to these rays, and special precautions have to be taken so as to bring it thoroughly under their influence.

THE EMPLOYMENT OF ARTIFICIAL RESPIRATION BY THE METROPOLITAN POLICE.

WE have received from Mr. Clinton Dent, chief surgeon of the Metropolitan Police, a statement and summary of all cases dealt with by the police in which artificial respiration was performed between Jan. 29th 1909 and the same date in 1910. Mr. Dent writes that artificial respiration was employed in 43 cases and on 48 persons. In 47 of these it was actually employed by the police, and in one by a private person. In some of the cases it was performed in part by the divisional surgeon. The Schäfer method alone was used in 34 cases; 25 of these were cases of immersion; 18 were successful and 7 unsuccessful. Judging by the reports, it is quite possible in some of these successful cases that the patient might have recovered without any artificial respiration at all, but this does not imply that the method was unnecessarily employed. In a case of a woman who had swallowed some paraffin and then thrown herself into the water, the application of the Schäfer method on the bankside restored natural breathing, but the woman died shortly after in hospital from the effects of the paraffin poisoning. The case may fairly be classed as a successful one as regards the Schäfer method. In some of the unsuccessful cases immersion had been prolonged and recovery was out of the question. In the case of a man, aged 64 years, who had only been immersed for a short time, the day was very cold, and death was ascribed by the divisional surgeon to heart failure. The Schäfer method was employed in 9 cases other than immersion. Two of these were cases of poisoning by chlorodyne and opium respectively, one of heat-stroke, one of coal-gas poisoning, and 2 were cases of suffocation by fumes in a burning house; 2 were attempted suicides by strangulation, and in one a boy was pinned by a cart shaft across the throat. In 6 of these recovery took place. Of the 3 unsuccessful cases one was a case of coal-gas poisoning in a woman who had probably been dead for some hours. In the other two death was the result of chlorodyne poisoning and of opium poisoning. The Schäfer method was employed on 13 occasions in children of 10 years old and under. In one case the children (who were very gallantly rescued from a burning house) were aged respectively 3 years and 1 year and 10 months. This shows conclusively that the view which has been held that the Schäfer method is unsuitable in the case of young children is erroneous. The Silvester method was used successfully in 3 out of 7 cases of immersion. In one of the unsuccessful cases a woman had drowned her three young children in a bath. The Silvester method was employed by direction of the divisional surgeon, but recovery in this instance was impossible. In a case of attempted suicide by strangulation the Silvester method was employed successfully by a police constable "as he was most experienced in the use of that method." In three cases of immersion, involving four persons, both methods were used. Mr. Dent observes that the number of cases is far too small to furnish any basis for comparison between the two methods, but to his mind the year's experience shows conclusively that the Schäfer method is thoroughly efficacious, and that even in the hands of persons who have had no long experience it can be easily applied. It has also been proved to be an effective method in cases of many kinds for which artificial respiration is demanded.

ANTIMONY COMPOUNDS IN THE TREATMENT OF TRYPANOSOMIASIS.

THERE can be no doubt that arsenic in the form of atoxyl has proved of value in the treatment of human trypanosomiasis when given at a sufficiently early stage of the disease. Unfortunately experience has shown that trypanosomes can develop a tolerance of this remedy, and hence it has become necessary to find, if possible, some other drug of equal value which may be used as a substitute or administered in combination with atoxyl. The near chemical and pharmacological relations of arsenic and antimony had suggested the use of the latter, but the irritant action of the ordinary antimony salts appeared to forbid their use by hypodermic injection. Attempts have already been made to form organic compounds of antimony analogous to atoxyl, and not long ago Professor A. R. Cushny submitted to Plimmer and Thomson for experimental trial a compound of glycine and antimony. As this compound, however, proved difficult to make and was unstable these investigators substituted for it tartar emetic. The results proving satisfactory, Dr. John D. Thomson and Professor Cushny planned and carried out a series of investigations with a view of determining the limits of usefulness of other antimony compounds. The experiments were carried out at the Lister Institute of Preventive Medicine with rats infected by a strain of nagana (T. brucei), and the results of this research were embodied in a paper, which was read on Jan. 20th before the Royal Society, on the Action of Antimony Compounds in Trypanosomiasis in Rats, being a report to a subcommittee of the Tropical Diseases Committee of the Royal Society. After the investigators had tested compounds in which antimony is more firmly combined than the ordinary salts, and after a trial had been made with a glyceride of antimony and with sodium sulphantimoniate (Schliffe's salt), all of which, however, presented objections of one or another kind, a large number of experiments were done with combinations of antimony with the organic acids corresponding to the ordinary tartar emetic. Among the salts examined were the lactate, citrate, malate, and mucate. The mucate was investigated with the idea that its multiple

hydroxyl groups might prove to have special powers of retaining antimony in solution, but it was found that while powerfully trypanocidal it induced great local irritation, which was a barrier to its employment. The citrate seemed inferior to the malates and tartrates, among which the sodium and potassium salts were equally efficient trypanocides, but the substitution of an alkyl radical for the potassium or sodium salt seemed to be attended with advantage. Solutions of ethylantimonyl tartrate were prepared by Professor Collie, and this proved a very efficient trypanocide, causing no local irritation in the rat. After injection of 1 cubic centimetre of a 0·2 per cent. solution into rats of 100 to 200 grammes in weight, trypanosomes, though previously present, disappeared entirely from the peripheral blood within one or two hours. Dr. Thomson and Professor Cushny assert that in their experiments no other drug has given such favourable results, but it will be necessary to test it against other species and strains and in different hosts before any general statement can be made as to its usefulness. Finally, some infected rats were treated with a solution of ethylantimonyl tartrate and atoxyl, which are stated to be respectively the best antimonial and arsenical trypanocides known to us at present. But the results of the combined medication were scarcely superior to those of the ethylantimonyl tartrate alone. It is, however, suggested by the investigators that by a more accurate adjustment of the two drugs the advantages of diminished recurrence of the trypanosomes and low toxicity to the host might possibly be combined. From their own work and that of others the two observers think that sufficient data have been obtained to indicate some points which must be taken into consideration in attempting further advance in the treatment of trypanosomiasis. These are: (1) As regards the compound it must be non-irritant and capable of remaining in perfect solution at the temperature and alkalinity of the tissues; (2) it must act quickly on the trypanosomes, for otherwise these parasites seem to acquire a tolerance to it; and (3) when the trypanosomes have been expelled from the blood by a single full therapeutic dose, there must be no recurrence in the majority of cases within some fixed time which will vary with the particular host and the species and strain of trypanosome in use. The longer the time during which there is no recurrence in the majority of animals treated the more promising is the outlook for the drug under trial.

BEQUESTS TO HOSPITALS.

IN spite of the fact that nearly every hospital, in making its appeal to the charity of testators, suggests a convenient form of clause for insertion in the will, litigation is not an infrequent result of this class of eleemosynary bequest. There may be some doubt as to the institution which it is desired to benefit, or the gift may be coupled with some fanciful restrictions which prevent the hospital governors or other administrators of the charity taking full advantage of it. But the difficulties attending a bequest to a specific institution are small as compared with those which attend the interpretation of a will by which a munificent testator desires to start an entirely new foundation. As a legal document the will may be perfect of its kind; but it may contain the rudiments of a scheme which cannot, without the aid of the court, be worked out in practice. The court must be asked to apply the doctrine of *cy-près*, which (as an old lawyer once wrote) "is a curious and excellent sort of learning." It means that where the intentions of a testator are avowedly charitable but are incapable of being exactly carried out for one reason or another the funds will be applied to some other charitable purpose similar to that which the testator desired to foster. A notable example of an application of the doctrine of *cy-près* came before Mr. Justice Eve recently. A Mr. Benjamin Weir left a sum of £100,000 to found a hospital for the benefit of Streatham and neighbourhood. He also left two freehold houses, one of which was to be used as a hospital. By the terms of the will the trustees were entitled to apply the money, &c., to a hospital "or other medical charity." Finding that the house left in this way was too small to be made into a hospital, the trustees obtained the sanction of the Charity Commissioners to a scheme by which one of the houses is to be turned into a nursing home and the other into a dispensary, while a considerable part of the bequest is to be handed over to the Bolingbroke Hospital, which is in future to be called the Weir and Bolingbroke Hospital. A dissentient trustee having objected to this scheme as being foreign to the objects of the testator, application had to be made to the court. It has now been sanctioned owing to the application of the doctrine of *cy-près*. An interesting example of an older application of this doctrine may be mentioned. In 1643 a testatrix gave a sum of £200 to be laid out in the purchase of lands of the annual value of £10. Of this one-half was to be devoted to the relief of the most poor and needy people of good life and conversation in the parish of Kensington, and the other half to apprentice a poor boy. This charity eventually became what is now known as the "Campden Charity," which had an income of £2000 a year in 1880, and doubtless has more at the present time. The court in that year sanctioned a scheme by which the funds could be applied to, *inter alia*, subscriptions to dispensaries and hospitals in the parish.

THE ACCUMULATION OF COAL GAS IN DISUSED SEWERS.

IN the annual return for 1909 made by Dr. F. J. Waldo, coroner for the City of London and for the borough of Southwark, is an interesting record of the causes and circumstances of the explosion of coal gas in last December in a disused sewer in Bermondsey, which was followed by a fire and accompanied by loss of life. The findings of the jury, in answer to the coroner, place it upon record that the explosion or series of explosions which caused the death which formed the subject of the inquest were due to the ignition of a mixture of coal gas and air which had collected in a disused sewer running under Grange-road, Bermondsey. The actual ignition took place through the use of a lighted tarred rope by men employed by the South Metropolitan Gas Company who, however, were absolved by the jury from any charge of criminal negligence in this respect. A cross-pipe or rider connected two gas mains at the point where the gas, which afterwards accumulated in the sewer, escaped, and this rider was fractured owing to an escape of water from a 4-inch "spur" attached to a water main. This "spur" was broken owing to its being partly fixed or included in some brickwork in connexion with the construction of a new sewer, an act for which the responsible owners of the sewer, the London County Council, were held by the jury to be responsible. With regard to the negligence, or want of reasonable precautions, which led up to the accident through which the deceased came to his death, the jury divided the blame between the London County Council, the Metropolitan Water Board, and the South Metropolitan Gas Company, and an important sequel to the inquest consisted in a letter addressed to the President of the Local Government Board by Dr. Waldo, and set out at full length in his report. This letter called attention to the inquest, gave extracts from the evidence, and suggested the desirability of an inquiry to be held by the Local Government Board with the coöperation of the City Corporation, the London County Council, and the metropolitan

borough councils, into the condition of disused sewers, and the means for preventing such explosions in the future. No such inquiry has been held, the consent of the various councils having no doubt not been easy to obtain. It is unfortunate that in the absence of such inquiry there should be no public knowledge of the extent to which disused sewers may exist, as the inquest referred to has shown how easily they may become a source of serious danger to the public, and the absence of any definite individual responsibility with regard to them.

FINGER-PRINT IDENTIFICATION.

WE are informed that there is a movement on foot to recognise in some way Mr. Henry Faulds's work in introducing the method of identification of finger-prints to public notice. To Mr. Faulds, a member of the medical profession and for many years a surgeon in Japan, belongs the honour of first publishing a proposal to use dactylography for identification, and there is no doubt that his work was greatly instrumental in securing in England the official use of finger-prints for the identification of criminals. The work of Sir W. J. Herschel, Sir Francis Galton, and Sir James Henry in the same field is well known, but a contribution by Mr. Faulds, which was published in *Nature* in 1880, was the first information given to the public on the subject. We shall be glad to record that our medical *confrère's* ingenious and valuable labours have received some public recognition.

PLAGUE PREVENTION IN GERMAN EAST AFRICA.

AN official report[1] has been published of the steps taken to protect German East Africa against plague when it broke out in Zanzibar in 1905. It appears that these steps were based on the three principles—examination of ships, control of rats, and early recognition of cases. Examination of ships must be carried out very tactfully or the trade of the port may be ruined, for the trade is mostly done in dhows—small sailing ships with native crews. They are of light draught and lie often on the foreshore, so they are high and dry at low water, allowing the rats, like their other passengers, to walk ashore. To keep these craft always anchored in deep water, or to disinfect them all, or even to examine their cargoes, would cost the owners money, destroy their small profits, and drive them away from the port. Consequently only those ships were dealt with which had suspicious cases in men or rats, or which had come from ports declared infected. A Clayton disinfecting apparatus was provided at Dar-es-Salam, the capital; quarantine stations were established here and at Tanga, and these places, with Kilwa and Lindi, all appointed port medical officers and obtained a disinfecting plant. Rats were kept down by native rat-catchers, poison, and bounties, also by cats, and indirectly by improved conservancy. Early diagnosis of the disease is said to be the readiest manner of controlling the disease. News of outbreaks is now very quickly circulated from port to port. Skilled bacteriologists are appointed to Dar-es-Salam and other stations, three moveable plague laboratories are sent where required, and at Dar-es-Salam in 1905 a plague institute was built where research is carried out and Haffkine's plague vaccine is prepared. At all places doubtful deaths and suspicious illnesses are investigated microscopically, while these investigations are, at Dar-es-Salam, extended and controlled by inoculation experiments. Rats caught at Dar-es-Salam are all examined. Out of 1344 which came under observation to Sept. 30th, 1908, 5 only had bacilli showing polar staining, and of these none were pathogenic to guinea-pigs. At the end of September, 1908, a native boy, who had done no work in the harbour or on ships, came into hospital complaining of fever. Several blood films were examined in the next two days for malaria and relapsing fever spirilla, but without result. On Oct. 1st a hard bubo formed in the right groin; this was excised on the 3rd, the pyrexia ceased on the 9th, the wound healed in three weeks, and he was discharged from hospital on Nov. 13th. On section the bubo was found to be dull red, with no foci of suppuration. In its juice were bacilli capable of polar staining. Two guinea-pigs were inoculated subcutaneously with this juice. One died in ten days, the other was then killed, and in each were found considerable thickening of the skin about the seat of inoculation, enlargement of the liver and spleen, whitish patches in the spleen and lungs, and numerous Gram-negative bacilli showing polar staining were found in all the organs. As the infection was passed on through guinea-pigs its virulence became exalted. On agar there developed dewdrop-like colonies of non-motile, Gram-negative bacilli, becoming grey and taking a polar staining, and agglutinated by Pasteur plague serum in 1–800 dilution. This investigation proved that the bubo had been caused by an attack of plague, and it is noteworthy that without help from experiments on living animals this commencing epidemic could hardly have been recognised. During the next three months 12 cases in all were considered, of which 3 remained suspicious, whilst 9 were proved to be cases of plague. After September the disease began to appear in rats, and from October to February 107 were found infected out of 4030 examined. The plague-carrying rats were nearly all found in that district of the city where three-quarters of the plague cases occurred, but only two rats came from the houses of the people infected. Still, great attention was paid to rat destruction, and a party of two medical men, four sanitary inspectors, and from 10 to 20 negroes were employed in their destruction by traps and poison (phosphorus paste). The water drainage channels were disinfected by the Clayton apparatus every two months, and extra attention was paid to the removal of rubbish which might harbour rats. To prevent damage to other ports or countries, information was immediately sent out, emigrants were inspected, and their baggage fumigated. The original paper is a luminous account, illustrated with plans and tables, of a well-devised plan energetically followed, and crowned with the success it merited. It is noticeable that clinical observation is not relied on for the detection of the disease, and that mild cases of bubo may be the only proof of the existence of an epidemic. Of 7 cases seen in life only 1 died.

[1] Archiv für Schiffs- und Tropen-Hygiene, January, 1910.

TWO UNUSUAL CASES OF CHRONIC RETENTION OF URINE.

IN a paper read before the Berlin Medical Society, and published in the *Berliner Klinische Wochenschrift* of March 7th, Professor L. Casper of Berlin described two interesting and unusual cases of chronic retention of urine. The first patient was a man, aged 68 years, who was seen by Professor Casper eight years ago with retention; since this time he had not been able to pass urine except by catheter. Examination showed that no mechanical obstruction was present and that the prostate was small rather than large. There was no indication of cerebral disease or of tabes. There was no history of syphilis, and no other symptom of disease, the patient being able to attend to his business. Professor Casper therefore regards the case as one of "senile bladder" (*Altersblase*), developing relatively sooner than usual, the pathological basis of the affection being a degeneration of the bladder muscle associated with a connective tissue sclerosis, like that described by Guyon and Lannois in 1885. The second case was more obscure, and the manner in which Professor Casper arrived at his diagnosis is both interesting

and instructive. The patient was a man, aged 34 years, who for the past six years had not been able to empty his bladder except by catheter. As in the previous case, there was no evidence of mechanical obstruction, of nerve disease, or of syphilis. The age of the patient excluded the diagnosis of senile bladder, and the actual nature of the case remained obscure until Professor Casper showed the patient to his colleague Dr. Th. Mayer on account of a peculiar condition of the skin over both knees and hands. This was recognised as an atrophic condition of the skin, and was found to be associated with some atrophy of the interossei and lumbricales of both hands. These atrophic processes led Professor Casper to attribute the inefficiency of the bladder to a similar condition of its musculature, and cystoscopic examination lent support to this view, since a number of diverticula were found to be present. Apart from congenital diverticula, such appearances are only found in cases where the pressure of the urine causes the bladder wall to yield, and their occurrence in a young man without mechanical obstruction of the urinary passages led to the conclusion that the bladder wall was partly atrophic and had therefore yielded to the ordinary pressure. The case was therefore regarded as a tropho-neurotic affection with atrophy of various structures. This diagnosis excluded the use of operative measures for treatment, which therefore consisted simply of catheterism. It will be interesting to see if Professor Casper's communication serves to bring forward records of similar cases.

DIFFICULT POINTS IN LIFE INSURANCE.

One of the most frequent obstacles to the passing of lives for insurance is the presence in the urine at the time of the examination of albumin or of sugar or some other substance which reduces Fehling's solution. All medical examiners must be familiar with the type of case in which everything appears satisfactory—family and personal history, physique, and physical examination—until the urine is tested and this is found to contain one of these substances. The presence of albumin or sugar on one occasion may be purely an accident, but it is only possible to judge of this after examinations of other specimens of urine. It is the usual practice of medical examiners for insurance at a little interval to examine other specimens of the urine passed either in their presence or in that of some agent of the insurance company. If these specimens prove to be normal the life may usually be accepted at ordinary rates, but if they be abnormal there is no alternative but to postpone acceptance or to decline the life. Sometimes an immediate acceptance is desired without waiting for further tests and then an extra rating may meet the case, and this rating may be removed if it is found later that the albumin or sugar was purely temporary. This matter has been brought to our attention by a medical correspondent who considers, and, we think, with some ground, that he has a grievance against an insurance company and its medical officer. The facts appear to be as follows. A medical practitioner of over 20 years' standing wished to insure his life for £500 and was examined by the medical officer of a first-class company. For several weeks he heard no more about the matter, and then on inquiry of the agent he was told that the medical officer had advised that the proposal should lie over for three months. He subsequently ascertained that the medical officer reported that the urine had a trace of albumin and phosphates and a specific gravity of 1012. Examinations of the urine by the candidate for insurance before the medical officer's examination had failed to reveal any abnormality, and the same healthy result was obtained afterwards. The candidate for insurance then submitted himself for examination by a leading practitioner in the town where he resides, and was reported to be sound in every way, the urine being quite normal. As far as we can judge from the facts put before us, our correspondent seems to have been treated somewhat severely in having his case postponed for three months on the ground of one examination of the urine showing a trace of albumin. But we see no reason to think, as our correspondent does, that the medical examiner made any mistake in testing the urine. There is no reason why albumin should not be present with a specific gravity of 1012. Indeed, it is usually with urine of low specific gravity that traces of albumin are found. Moreover, the fact that albumin has not been found before or since does not make it less possible that a trace of albumin was present at the examination for life assurance. The applicant meanwhile has withdrawn his proposal, but we have no doubt that if he wished to proceed with it he would now find no difficulty in getting acceptance at the same or another office. We suggest that he apply to the same office again.

POOR-LAW MEDICAL RELIEF.

A CIRCULAR has been issued recently by the Local Government Board to boards of guardians concerning the administration of out-door relief to the poor. The short section concerning medical relief is couched in general terms, but should encourage guardians to take a more generous view of their responsibilities in this matter than has always been the case hitherto. The recommendation reads as follows: "In the administration of out-door medical relief the same care should be observed by the guardians as in the case of ordinary out-door relief. While there should be precautions to prevent an undue resort to medical relief at the cost of the rates, it is important that every facility should be provided to enable the sick poor to obtain the medical assistance of which they stand in need. For this purpose the medical relief districts should be so arranged that the services of the district medical officer may be readily available, and steps should be taken to ensure that there is no unnecessary delay in obtaining a medical order. It is especially important that the guardians should be able to supply the services of nurses in case of need. Nurses are generally best provided through the agency of local nursing associations, and the Board are willing, as in the past, to sanction subscriptions by the guardians for this purpose. In a recent circular letter the Board made a similar suggestion as regards midwives. The Board recognise that much good is done by means of provident dispensaries and medical clubs, and they consider it desirable that the guardians should avoid action which may have the result of discouraging membership of such societies."

THE VARIETIES OF TUBERCULIN.

IN THE LANCET of March 26th, p. 844, we published a lecture by Dr. Nathan Raw on the Treatment of the Surgical Forms of Tuberculosis by Tuberculin. In it the writer drew attention to some of the various forms of tuberculin now employed. We have received a pamphlet containing the report of a discussion which took place at the German Pharmaceutical Society in February of last year. The discussion was introduced by Professor W. G. Ruppel with a paper entitled "Tuberculin and other Specific Preparations as an Aid to the Diagnosis and Treatment of Tuberculosis." Professor Ruppel related the history of tuberculin from the time of its introduction by Professor R. Koch in 1891. He then gave a brief account of the method of manufacture of the substance and the modifications which were subsequently introduced. He showed that the failures met with in the earlier days of its use were due to the large doses employed. Now that it has been demonstrated that an immunising response can be evoked by minute doses numerous observers have again employed the remedy both in medical and surgical cases. Professor Ruppel's remarks will

well repay perusal. In his description of the various forms of tuberculin and the allied preparations he naturally referred mainly to German firms; nevertheless, most of these preparations can now be obtained in this country. His descriptions were rendered more interesting inasmuch as a brief account of their methods of manufacture was given. In discussing "Koch's old tuberculin" he referred to the ophthalmic and cutaneous reactions which have been widely used for the purposes of diagnosis and to which we have frequently referred in our columns. Professor Ruppel spoke favourably of the results obtained by "Koch's new tuberculin—T.R." He also mentioned a preparation known as tuberkulol, with which Professor Landmann claimed to have obtained satisfactory results. Attention was also drawn to certain other preparations, such as tuberkulonastin and the "tuberculine de Béraneck," which are less known in this country.

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 31st, 1832.

OBSERVATIONS ON

THE INFLUENCE OF FEAR

IN PREDISPOSING TO DISEASE.

By JAMES CLARKE, *Esq.*, *Assist. Surg.*, *R.N.*

THE human body, it is evident from repeated observation, possesses at different periods of life, greater or less powers of resistance within itself, to the operation of those diseases excited by means of atmospheric influence.

In whatever mode a vitiated atmosphere has the effect of lighting up disease in the body, of this we are certain, that a continued and modified exposure to its influence, deadens its power, and in a peculiar manner having impregnated the constitution, renders it free from attack.

A robust state of health is by no means necessary to a person undergoing this trial; although, at the same time, absolute debility is to be avoided. How often do we see nurses, who in general do not enjoy good health, engaged, daily, attending the most fatal cases of typhus, small-pox, and other acknowledged contagions, while a casual visitor in rude health falls a victim to the pest! Often does it happen that a delicate female may attend on a relative during the whole range of a fatal case of typhus without experiencing any bodily illness, but the moment the object of her hope has died, her mind sinks within her, and the deadly poison works upon her harassed frame.

In the operation of miasmata on the system, a great deal I conceive must be taken into consideration, with respect to mind and body. In the case of a nurse or physician having a comparative immunity from contagion, it is evident, as regards the operation of all poisons on the body, aerial or otherwise, that habitude to them materially weakens their force. Let us add, that from constant intercourse with the sick, their minds are perfectly free from alarm, and no useless fears prey on their nervous system. In accordance with this rule, an infant will be found uninjured sucking the breast of a mother dying of plague. When a stranger, perhaps in rude health, visits a patient from choice or necessity, labouring under a contagious fever, from the want of habitude to scenes of this description, he naturally feels an awe, if not actual fear, come over him. This of course must render his body more susceptible to the influence of the morbific cause, and it is no wonder if he imbibes the contagious miasm.

Again, on the other hand, we have seen the wonderful influence of hope in preserving the body secure during the intercourse with the sick, and the consequent infection on its being lost. There can be little doubt that during the panic of an epidemic disease, a great many are rendered susceptible by the influence of fear and other depressing passions. This is more particularly the case on board of ships, where the healthy and sick are necessarily nearly approximated.

SECOND REPORT OF THE DEPARTMENTAL COMMITTEE APPOINTED TO INQUIRE INTO THE LAW RELATING TO CORONERS AND CORONERS' INQUESTS, AND INTO THE PRACTICE IN CORONERS' COURTS.[1]

THE second report of the Departmental Committee on the Law relating to Coroners was issued last week as a Parliamentary paper. It will be remembered that Mr. Herbert Gladstone, Home Secretary, in December, 1908, appointed the committee with the following constitution: Sir Mackenzie Dalzell Chalmers, K.C.B., C.S.I. (chairman), Sir Malcolm Morris, K.C.V.O., Sir Horatio Shephard, Mr. T. A. Bramsdon, M.P. (now Sir Thomas Bramsdon), and Dr. William H. Willcox. Mr. John Fitzgerald Moylan was appointed secretary of the committee. The committee issued an interim report last year which was reviewed in THE LANCET, Vol. II., 1909, p. 557. The present report, which is dated Dec. 31st, 1909, consists of an introduction, parts dealing with the office of coroner, jurisdiction of coroner, procedure and practice, miscellaneous matters, and a conclusion. It is signed by all the committee-men subject to a memorandum by Sir Thomas Bramsdon. It contains 46 sections, the majority of which consist of reasoned recommendations expressed in clear terms. We give herewith a summary of these sections, dwelling more fully on those that concern the medical profession than on those dealing with the purely legal position of the coroner and his non-medical functions.

I.—INTRODUCTORY.

The committee states that it has held 33 meetings and examined 69 witnesses, besides receiving answers to written inquiries from 275 coroners. It has considered further the questions of deaths resulting from the administration of anæsthetics and of the dangers arising from the use of flannelette in articles of clothing. Separate reports will be presented on these questions. The committee comments on the antiquated and obsolete condition of the law relating to coroners, and expresses its astonishment at the amount of good work which has been done in spite of it, and which can only be attributed to "the good sense, tact, and good feeling shown by the majority of coroners in their dealings with the public." The committee thinks the duties of the office would be more easily and efficiently performed if changes were effected in accordance with the following recommendations, the greater number of which "could be carried into effect by an enactment giving to some central authority a general power to make rules of practice and procedure."

II.—OFFICE OF CORONER.

1. *Statistics.—Franchise coroners.*—There are at present 330 coroners holding 360 coroners' jurisdictions. 200 are county coroners, 76 borough coroners only, and 54 franchise coroners only. Besides these all judges of the High Court are coroners *ex-officio*, although they do not exercise their function as such. It is recommended that the franchise coronerships should be abolished as vacancies occur, and their districts merged in the county coronerships. Special exceptions, as the coronerships for the City of London and the King's household, might require to be made. Instances are given of the inconvenience of franchise coronerships, which were created by Crown charters granted to individuals or corporations. Many of their jurisdictions form "islands" in the middle of county coronerships and confusion is thus created. Franchise coroners, moreover, have no *primâ-facie* right to appoint a deputy, which is inconvenient.

2. *Admiralty coroner.*—It is recommended that the offices of Admiralty coroner and his deputies, which have been in practical abeyance since the passing of the Judicature Act, should be abolished formally.

3. *Land qualification of county coroners.*—It is recommended that this qualification, which has become nominal, be abolished.

4. *Professional qualifications of coroners.*—It is recommended that no one should be eligible for the office of

[1] Part I., Report. Presented to Parliament by command of His Majesty. Cd. 5004. London: Eyre and Spottiswoode, Limited. Pp. 22.

coroner or deputy coroner unless he be a barrister, solicitor, or medical man, subject to the continued tenure of existing appointments.

5. *Remuneration.*—The existing rule under which borough coroners are paid by fees and travelling expenses for each inquest should be revised, and as in the case of county coroners they should be paid by salary subject to quinquennial revision. Such salary should take into account the number of preliminary inquiries held, for these often may entail more trouble and time than an actual inquest. Such a change is desirable because "it is not right to put a coroner in the position of having a pecuniary motive for holding unnecessary inquests." The same remark applies with greater force to the payment of the coroner's officer. In the larger courts a clerk to take depositions, and clerical assistance in the smaller courts, should be provided.

6. *Age limit.*—Retirement from the office of coroner should be compulsory at the age of 65, subject to one five years' extension by the Lord Chancellor for special reasons, and subject to the interests of existing appointments.

7. *Pensions.*—The office of coroner should accordingly be pensionable. Several reasons are given for this recommendation.

8. *Time for appointing borough coroner.*—Doubt exists as to the interval allowed before filling up a vacancy for the post of borough coroner. The committee suggests that this should be fixed at a maximum of not less than three months.

9. *Number of deputy coroners.*—A coroner should have power in an emergency to appoint a second deputy under conditions to be regulated.

10. *Certificate for deputy of borough coroner.*—No justice's certificate should be required, as at present, before the holding of an inquest by a deputy coroner. Reports should be made to the local authority of all occasions on which a coroner acts by deputy.[2]

11. *Coroners as justices of the peace.*—If the professional qualification recommended above be approved the committee recommends that the name of every county and borough coroner should be placed on the commission of the peace for reasons specified in this section.

III.—JURISDICTION OF CORONER.

12. *Fire inquests.*—The committee considers that the system of fire inquests established by the Act of 1888 in the City of London has worked so well that it might be extended to the country at large, possibly first as an adoptive Act[3] and later as compulsory. It would tend to deter incendiaries, to keep property owners up to the mark in taking precautions against fire, and to improve fire brigades.

13. *Treasure trove.*—The "attenuated" jurisdiction of a coroner with respect to treasure trove should be revised, to which end certain suggestions are made in this section.

14. *Coroner as substitute for sheriff.*—The jurisdiction of coroners to act on occasion as substitutes for sheriffs should be transferred to designated county courts. The present jurisdiction in this respect demands technical knowledge not possessed by a non-legal coroner.

15. *Post-mortem examination without inquest.*—The committee expresses its conviction that "it is most desirable that the coroner should, without holding an inquest, have power to order and pay for a post-mortem examination in cases of sudden death where the cause is unknown, and there is no reason to suspect that the death is violent or unnatural." The committee considers that this would almost certainly tend to the diminution of inquests and the consequent sparing of distress to the friends of many deceased persons.

16. *Deaths under anæsthetics.*—These will be considered fully in a later report. In the meanwhile it is submitted that "every case of death under an anæsthetic ought to be reported to the coroner, whether it occurs in a public institution or a private house. If the coroner on inquiry is satisfied that all due care and skill has been used it is undesirable that there shall be an inquest."

17. *Second inquest.*—Machinery should be created by which a coroner may move for and hold a second inquest when fresh facts not available at his first inquiry are brought to light. At present a second inquest is only held in reprobation of the coroner's conduct of the first inquiry.

[2] Sir Thomas Bramsdon dissents from this last recommendation.

[3] Sir Thomas Bramsdon being convinced that this Act would be beneficial would make it compulsory from the first.

IV.—PROCEDURE AND PRACTICE.

18. *Rules of procedure.*—The committee "think it essential that a wide and flexible power to make rules for procedure in coroners' courts should be given by statute to some central authority." It is suggested that this authority might be the Lord Chancellor and Home Secretary, assisted by a small advisory committee of coroners. A flexible power is necessary on account of the widely differing conditions existing between urban and rural jurisdictions with regard to accessibility of expert medical advice and other matters.

19. *Scales of costs.*—The committee thinks that "local scales of costs should be abolished and that the Home Secretary should prescribe scales of costs for coroners' courts." These should be uniform and money should be advanced to the coroner for their payment, subject to an auditor's surcharge.

20. *Exhumation.*—It appears to the committee that a coroner has sufficient power as a general rule to order an exhumation when necessary for the purposes of an inquest. A form of exhumation might be prescribed conveniently.

21. *Removal of body.*—It appears to the committee that for the purposes of an inquest the coroner has the legal custody of the body in question. It is recommended that he should be empowered to order the removal of a body for convenience of post-mortem examination to a hospital, even though outside the local limits of his jurisdiction. Adjoining districts might combine to maintain a joint coroners' court and mortuary.

22. *Warrants.*—Processes issued by a coroner to summon a witness should run in jurisdictions adjoining his own.

23. *Production of exhibits.*—Coroners should be entitled without question to order the production of material evidence of crime (exhibits) without applying for a Crown Office *subpœna duces tecum*.

24. *Jurors' list.*—The committee considers that service on a coroner's jury should carry exemption from service on other juries for a certain length of time. Coroners should retain their discretion in summoning juries.

25. *Number of jury.*—Not more than 12 jurymen should be sworn and the coroner should be empowered to accept a verdict of not less than three-fourths of the jury. Unanimity is not essential as the verdict is not conclusive for any legal purpose.

26. *Failure of jury to agree.*—If such a majority cannot be obtained the coroner should be empowered to discharge the jury and summon a fresh one.

27. *Perverse verdicts.*—However perverse or ridiculous a verdict may be the coroner should accept it, if the jury insist, but he should be empowered, if necessary, to apply to a judge in chambers to set the verdict aside and to authorise the summons of a new jury.

28. *Riders to verdicts.*—The committee recommends that riders should be required to be separated from verdicts and endorsed on the back of the inquisition, and that the coroner should be empowered to record his dissent from a rider and his reasons therefor.

29. *Medical witnesses summoned by jury.*—The committee considers that the powers conferred by the Coroners Act, 1887, upon juries to select a medical expert if they are dissatisfied with the evidence called by the coroner should be repealed, as they already have a remedy if the coroner does not conduct an inquest properly.

30. *Payment of jury.*—Juries should as a rule be paid and upon a uniform scale.

31. *View of the body.*—The witnesses examined by the committee were almost unanimous that the coroner's view of the body should be retained, since the law requires an inquest to be held *super visum corporis*, and since it may be necessary for his proper understanding and exposition of the medical evidence. The committee concludes that the view by the jury should be as a rule dispensed with, but that the coroner should be empowered to order it at any stage of the inquest, in which case it should be something more than the present usual "perfunctory march past."

32. *Fees to medical witnesses.*—The present fees of 1 guinea for a post-mortem examination and 1 guinea for medical evidence however often the inquest may be adjourned, are considered by the committee to be "wholly insufficient" and to give rise to "justifiable dissatisfaction" in the medical profession. The section continues:—

In many cases the post-mortem examination can be made effectively only by a pathological expert, but if such an expert be called in he can

at present receive only a guinea for the examination. For expert examinations both skill and practice are required, and the expert who makes them ought to be paid an adequate fee, not only for the examination but also separately for giving evidence. ..... There should be power to summon and pay the medical practitioner or practitioners with clinical knowledge of the case in addition to the expert. The provision of the Coroners Act, 1887, which includes the chemical analysis of the stomach or intestines as part of the post-mortem examination, is ridiculous, and should be repealed. Except in the simplest cases an analysis is useless unless it is made by a toxicologist with all the appliances of a modern laboratory at his command. ..... The conditions under which a coroner may order an expert analysis should be determined by Home Office regulations ..... (subject to) the powers of the Home Secretary to direct a special analysis by an expert named by him in special cases.

33. *Selection of medical witnesses.*—We quote a portion of this section as it deals with a much-debated matter.

The medical practitioner who was called in to see the deceased may or may not be the proper person to make the post-mortem examination. It is a matter which must be left to the absolute discretion of the coroner, who is the only person who can determine the fitness of the medical practitioner to make the examination. Every coroner should be empowered to call such medical witnesses as may be necessary for the proper determination of the case. ..... To give to coroners a somewhat wider discretion as to costs would, on the whole, be conducive to the efficiency of inquests and the public interest.

This section also describes with commendation the powers of the procurator fiscal in Scotland with regard to obtaining and paying for medical evidence.

34. *Medical fees in cases of institutions.*—The committee has been unable to obtain from any witness a defence of the existing provision whereby the medical officer of a "public hospital, infirmary, or other medical institution" is not paid for performing a post-mortem examination upon the body of a person dying in such institution, or for giving evidence at an inquest concerning his death, and thinks this "inequitable provision" should be repealed.

35. *Committals by coroner.*—The question of committing persons for trial for murder or manslaughter by coroners is considered, and it is suggested that the question be referred to high judicial authority.

36. *Depositions.*—A full note of all evidence at inquests should be taken by a clerk provided for the coroner.

37. *Copies of depositions.*—The committee considers that as the coroner controls a court of record the safe custody and control of depositions and other records should be ensured by rules, and a reasonable scale of costs for the supply of copies of depositions should be prescribed.

38. *Attendance of coroners at assizes.*—This is customary where it is required to prove depositions that have been made before the coroner. The committee thinks the practice inconvenient and unnecessary as a rule, and suggests an alternative procedure.

39. *Seals and parchment.*—The requirement that the inquisition in cases of murder or manslaughter should be recorded on parchment and sealed by the jury is inconvenient and unnecessary and should be abolished.

40. *Coroner's officer.*—This section explains that though the coroner's officer fulfils important functions in obtaining evidence and summoning witnesses and attending inquests, yet he is "unknown to the law." It approves of the common practice of nominating a police officer or ex-police officer for the office and giving his fee to the police fund and not to himself. This custom is recommended for universal adoption.

V.—MISCELLANEOUS.

41. *Consolidation.*—The committee recommends that a fresh Consolidation Act should be prepared, to include the 30 existing enactments dealing with the law of coroners in a single measure.

42. *Cremation cases.*—Dr. H. T. Herring's evidence in respect to inquests on bodies brought to this country for cremation is recommended to the attention of the Home Office.

43. *Certification of deaths.*—The committee condemns the present laxity of death certification and recommends that a certificate of death should not be accepted from a medical practitioner unless it states that he has satisfied himself of the fact of death by a personal inspection of the body, and also that registrars should be required by law to report all uncertified deaths to the coroner, as is now usually done.

44. *Verdict in cases of suicide.*—The verdict of *felo de se* should be abolished and the verdict of "temporary insanity" is open to grave objection. "In cases of suicide the verdict should simply be that the deceased died by his own hand (stating how). But the jury should be at liberty to add to their verdict that there is no evidence to show the state of his mind, or that at the time of taking his life he was of unsound mind."

45. *Open court.*—The committee approves of the present law which gives the coroner the same discretion to exclude the public (including representatives of the press) from his court as is possessed by examining magistrates. It again commends the Scottish system of private inquiry by the procurator-fiscal, except in cases of industrial accidents or deaths in prison, but adds that "the jury system is so deeply rooted in English life and history that we do not see our way to advocate any change."

VI.—CONCLUSION.

46. The committee points out that out of this considerable number of recommendations it attaches special importance to three: the abolition of franchise coroners, the payment of all coroners by salary instead of fees, and the bestowal on a central authority of a power to make rules of practice and procedure. Finally, it expresses its appreciation of the services rendered by Mr. J. F. Moylan, secretary of the Committee.

OBSERVATIONS ON THE CIRCULATORY SYSTEM.

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X.[1]

The Pulse.

THERE is a tendency in some quarters to belittle the digital method of examining the pulse. Nevertheless, if the necessary skill in manipulation has been acquired, valuable information can be obtained by it. So far as the estimation of the blood pressure is concerned, I indeed regard the fingers as in some respects superior to the hæmomanometer, and this in spite of the fact that I have systematically employed this instrument since its first introduction.

I hold with Dr. William Russell that, in judging of the value of an instrumental reading, the condition of the arterial wall has to be taken into account. While normal arteries in a state of moderate tonus may give accurate readings, the readings given by vessels thickened as the result either of disease or vaso-motor spasm are apt to be too high. If, as may happen in advanced granular kidney, we obtain a reading of 280 mm. Hg, the strong probability is that it is in considerable excess of the actual figure; and the like is true when with a flickering heart and barely perceptible radial pulse the hæmomanometer indicates so substantial a pressure as 90 mm. Hg. In each case, as Dr. Russell points out, the excessive record is to be explained by the supernormal resistance which the walls of the arteries offer to compression: in the one case the excessive resistance is the result of pathological thickening and spasm, and in the other case of spasm alone, the systemic arteries actively contracting upon, and thus accommodating themselves to, the ever-diminishing volume of systemic arterial blood.

In estimating blood pressure by the finger, on the other hand, the practised physician can make allowance, not only for the compressibility of the artery under examination, but also for the character of the pulse-wave. Yet so enamoured have some physicians become of the instrumental method of testing blood pressure that they even deny that the finger is of any use for this purpose, and they are prepared with learned arguments in support of this contention. It may safely be affirmed that such have never trained themselves in the digital method. Long before any instrument had been invented for measuring the blood pressure clinically, a definite connexion had been established between high blood pressure and renal disease, and assuredly many physicians have been put on the track of renal disease by the "feel" of the radial pulse. It has certainly happened to me many times that having felt a *plus* pressure radial pulse suggestive of chronic renal disease and cardiac hypertrophy, I have forthwith examined the cardiac apex only to find it displaced outwards, as I anticipated it would be. And I have further

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found that with this easily recognised *plus* pressure one is generally safe in postulating a family history of apoplexy. Contrariwise, I have over and over again been able to verify with the finger Broadbent's dictum to the effect that a low pressure pulse is characteristic of long-lived families. I mention this as a further vindication of the digital method of examining the pulse.

It is astonishing how little pulse-testing has been taught in the medical schools. Before the introduction of the hæmomanometer it was all but entirely neglected. In my student days the examination of the pulse consisted of little more than the mere counting of it, and I do not remember to have received the slightest hint as to how to set about estimating blood pressure. This disappointed me not a little, as I fully realised the great importance to the physician of being skilled in this respect. Not until the appearance of the late Sir William Broadbent's book on the pulse was I able to obtain any definite and detailed information on this subject.

Broadbent taught that the blood pressure could be accurately estimated by noting the condition of the artery between the beats in regard to what he termed "fulness." If on placing the tips of two or three fingers on the radial artery, and moving them to and fro across the vessel, the latter gave to the fingers a sustained feeling of cylindricality, if, i.e., the artery felt like a solid cylinder both during and between the beats, it was said to be "full between the beats," and the pulse was regarded as a high tension pulse. If, on the other hand, this feeling of cylindricality was lost between the beats, the vessel seeming to melt away into the surrounding tissue, the pulse was judged to be of "low tension." In carrying out this method, however, a precaution (one which Broadbent omitted to indicate) has to be observed, otherwise it will give altogether wrong results. When I first employed the Broadbent method I was met with the difficulty that almost all the radial arteries I felt appeared "full between the beats," and this will be found to be always the case, even when the blood pressure is manifestly low, provided sufficiently light pressure is employed. To make Broadbent's method of practical use it is, in short, necessary to pay attention to the amount of pressure exercised by the examining fingers; that pressure must not be too great, nor too little, but of a moderate degree which experience alone can determine.

The art of testing the blood pressure digitally depends essentially upon the amount of pressure which is applied to the artery and the ability to estimate that amount correctly—in other words, it depends upon the delicacy of the muscular sense. This differs, of course, in different individuals. Some few are so well endowed in this respect that if properly instructed they can learn to estimate the blood pressure by the digital method in a comparatively short time; others may take years to acquire the necessary skill; others, again, never attain it. Even in the same individual proficiency may vary from time to time. When the body is exhausted or the hands are cold, the "tactus" loses in discriminating power. A common mistake in feeling the pulse is to employ too great pressure. Of the large number of students and others to whom I have offered my own for examination, but few have shown sufficient delicacy of manipulation; not infrequently the wrist has been grasped with truly Herculean vigour. No skill in testing the blood pressure can ever be attained in this way: a touch of the utmost delicacy must be employed.

While recognising the value of Broadbent's method I personally prefer the method of obliteration. This may be carried out in several ways. A plan which has some advantages is to use the fingers of one hand to obliterate the artery, and then, having with the third finger of the other obliterated the distal portion of the vessel so as to prevent "recurrence," to feel with the index finger of this hand for the disappearance of the pulsations. I prefer, however, the plan of making pressure upon the artery with a single finger, or with two or more fingers of one hand, and observing the degree of pressure needful to obliterate the pulsations as felt *under* the finger (or fingers). As the degree of pressure is increased a point is at length reached at which all sense of pulsation *under* the finger (or fingers) is lost, though remaining on the proximal *side* and also on the distal side if the pulse is decidedly recurrent. No account is to be taken of these proximal and distal pulsations. Attention is to be concentrated on the pulsations as felt under the finger (or fingers).

While examining the pulse the physician should, preferably, be sitting; he should as far as possible be in a rested condition of body, and his hands should not be cold. The patient's wrist should be kept level with, or only slightly above or below, his heart, and should rest on some firm support, such as the bed, or a table. It is very important to get the wrist in the best position for examination. The physician places two or three fingers of one hand over the radial artery, while with the other he gently flexes and extends the wrist and endeavours to obtain the position most favourable for isolating the artery. This will often be found to be a slightly extended position of the wrist. Meanwhile the condition of the arterial wall (in regard to tonus, thickening, dilatation, tortuosity, calcareous degeneration, &c.), should be ascertained as far as possible. The condition of the vessel in regard to its "fulness" or "emptiness" between the beats may then be tested by applying two or three fingers to it and exercising the gentlest possible pressure, and, while moving these fingers to and fro across the artery, very gradually increasing the pressure, and noting what degree of it can be applied before the sense of cylindricality disappears. During this procedure the patient's wrist may be gradually raised and lowered so as to modify the degree of hydrostatic pressure in the vessel, note being taken meanwhile of the effect of this upon the tension of the vessel wall.

By this time the physician will have duly prepared himself for gauging the degree of pressure needful to check the pulsation as felt *under* the examining finger (or fingers). Very gentle pressure should first be made, and this should gradually be increased until the pulsation disappears. As the pressure is increased the impulse of the pulse-wave under the finger becomes more and more pronounced until a maximum is reached, after which it gradually subsides and is finally lost. Contrariwise, when, after obliteration of the vessel, the pressure of the finger is gradually lessened, the faintest possible pulsation is at first felt, and this gradually increases to a maximum, after which it grows less and less, and ultimately dies down. This manœuvre of gradually increasing and diminishing the pressure should be gone through a few times. It matters little whether two or three fingers, or even a single finger, be employed in the examination; after due practice a single finger will be found to serve quite well. The pads of the finger-tips should be applied to the vessel, but if a single finger is employed, say the index finger (the thumb answers equally well), a considerable portion of the palmar surface may be laid lengthwise over the artery—e.g., the whole of the palmar surface belonging to the distal phalanx. The finger pad is so placed upon the vessel that the cessation of the pulsations, as felt by the finger at the moment the lumen is obliterated, and their renewal upon diminution of the pressure, are first felt in the central part of the pad.

If the finger is applied in this way and a gradually increasing pressure made with it, it will be found that the pulsations first become imperceptible in the central part of the pad and—I am now assuming that there is marked recurrency—that with every increment of pressure the pulsations recede in the proximal and distal directions of the vessel, leaving an ever-increasing portion of its length devoid of pulsation; and, contrariwise, that as the pressure on the obliterated vessel is diminished the proximal and distal pulsations gradually approach one another, and finally, at the moment when the flow through the vessel is re-established, meet at the centre. The fact that the pulsations subside and revive in this fashion, and that their cessation and revival are not felt instantaneously through the entire length of finger contact, is to be explained by the circumstance that, the finger-pad being convex, the maximum pressure is produced at its central part.

In the method just described the finger employed for feeling the pulsations also serves for exerting the pressure and estimating its extent. It is possible to employ the other hand for this purpose. The degree of pressure needed to obliterate the vessel may also be indicated by means of a bulb manometer placed over the examining finger, note being taken of the position of the index at the moment when the pulsations are interrupted.

The recurrent pulse.—When after obliterating the radial artery at the wrist a pulsation can be felt over the distal part of the vessel, as it lies external to the flexor carpi radialis, the phenomenon is known as the "recurrent pulse." The term sufficiently describes the condition; it is

due to the transmission of pulsations in a direction opposite to the normal—i.e., centrewards—by means of the collateral circulation, notably through the superficialis volæ and the anterior and posterior carpal. Some have regarded the recurrent pulse as indicative of high blood pressure. For me it has no clinical significance. It is curious that Sir William Broadbent should refer to this form of pulsation as though it were an exceptional phenomenon, when, as a matter of fact, it is all but constant. Evidently this careful observer only took account of the phenomenon when it was markedly developed, for on close examination its presence in a greater or lesser degree can be detected in the vast majority of cases. In order to test for it both hands should be employed. With one hand the radial artery is obliterated in the usual position, and with the other the distal portion of the vessel as it lies beside the flexor carpi radialis is tested by means of carefully graduated pressure. If anyone fails by this method to detect recurrent pulsation in the great majority of cases he may rest assured that he has made but small progress in the clinical manipulation of the pulse.

A clinical exercise in blood-pressure gauging.—A good exercise for acquiring skill in estimating blood pressure digitally is to test the radial artery while the wrist is being gradually raised and depressed between its highest and lowest positions. In this way the pressure in the radial can be made to vary through a considerable range, one, .e., represented by a column of blood some 5 feet in length, say, 100 mm. Hg. Suppose the vessel we are examining to be normal and the blood pressure to be moderate. It will be found when the wrist is held as high as possible above the level of the heart that the pulse is highly compressible; that the radial walls feel only moderately tense, that it is difficult to perceive fulness between the beats, and that the pulse-waves give to the examining finger the impression of weakness, as of blood flowing under low pressure. As the wrist is lowered the character of the pulse will be found to undergo a progressive change: the artery will be felt to become more and more incompressible, its walls to become more and more tense, the sense of fulness between the beats to become more and more pronounced, while the impression conveyed to the fingers by the pulse-waves will be one of steadily increasing force. If the wrist is suddenly raised and depressed between the two extremes these changes will be strikingly manifest.

Here, then, we have a means of altering the radial blood pressure by very small amounts, and of educating the finger to detect even minute differences. I am not contending that anyone can attain to such a degree of proficiency as to be able to distinguish differences in pressure as represented by a few inches of blood column, although the exceptionally gifted can probably come near to this, but I believe that most can in this way learn to detect differences of pressure as represented by foot-columns of blood, say, three degrees of diminishing pressure as the wrist is raised from the mean position to its highest point, and three degrees of increasing pressure as it is lowered from the mean position to its lowest point.

A standard of comparison.—In estimating the blood pressure by the fingers it is a help to have some standard of comparison, and no better can be obtained than that offered by the physician's own pulse. He ought to know his average blood pressure and to be able to detect, digitally, any marked departure from it. If he has any difficulty in coming to a decision regarding a patient's pulse, he should from time to time examine his own, altering the level of the wrist as just described; the pulses of other persons, should they be available, may, sometimes also with advantage, be tested for comparison. In this way the tactus of the fingers can often be worked up to the necessary degree of refinement.

Proficiency in the digital method rarely met with.—I believe it to be possible for most medical men to acquire, by the methods described, sufficient skill in manipulating the pulse for ordinary clinical purposes. I am bound to say, however —I do so in fear and trembling—that in my experience but few possess the needful proficiency. Those who talk glibly of *plus* and *minus* pressures, after laying their fingers upon the patient's wrist, but too often show themselves incompetent to form even an approximate estimate of the pressure. It is this incompetence which leads many to under-estimate the value of the digital method and wholly to discard it in favour of the hæmomanometer. Finding that the results obtained by the finger test are not confirmed by the readings of the hæmomanometer, they at once assume that the fingers are useless for testing blood pressure, ignorant of the fact that the fault is not in the digital method, but in their way of applying it. As a matter of fact, the educated finger will probably make fewer mistakes than the hæmomanometer. It may safely be said that a skilled employer of the digital method would never make the mistake of greatly over-estimating pressure; whereas it is certain that the readings furnished by the hæmomanometer are sometimes in considerable excess of the actual pressure.

Faulty treatment based on a wrong estimate of the blood pressure.—Lack of skill in manipulating the pulse is frequently responsible for errors in treatment. A common mistake is to underestimate the strength of the pulse, especially in acute disease, and to order alcohol, digitalis, strychnine, or what not, to stimulate a heart which is thought to be failing, but which has, in point of fact, considerable reserve of force. I have myself seen this mistake so frequently that I can have no doubt that it is a very common one. Unless there are clear indications that the heart is failing it is worse than useless to worry it with drugs. If there are threatenings of imminent failure, stimulating measures should of course be adopted, but I am convinced that in the failure resulting from acute disease far more help can usually be obtained by such measures as restricting the diet, bleeding, oxygen inhalations, and saline injections, than by adding to the supply of toxins, already too plentifully present in the blood. In regard to alcohol it should be remembered that its action is evanescent and that consequently its chief use is in tiding the patient over a crisis. A not uncommon error, and a very grave one from the therapeutic standpoint, is to mistake a supernormally high-pressure pulse for a feeble one. This mistake is most likely to occur when the radial is small from extreme hypertonus and deeply imbedded. Only by making firm pressure on it is the excess of pressure in such cases revealed. A mistake here is serious, because there is no more valuable clue to treatment than the discovery of a supernormal pressure.

Large hypotonic radial artery with plus blood pressure.—Two opposite conditions of the radial artery are met with in subjects presenting persistently high blood pressure. The vessel may be habitually hypertonic, when it remains small and straight; or it may be habitually hypotonic, when it becomes dilated, tortuous, and greatly thickened. We have seen that high blood pressure is essentially due to generalised arteriolar contraction, and that with this contraction of the arterioles there tends to take place a protective contraction of the arteries proximal to them. The effect of this is to prevent the pre-arteriolar vessels from yielding under the heightened pressure and thus becoming dilated and tortuous: when the radial artery is thus protected by persistent hypertonus it remains small and straight in spite of continued high blood pressure. Chronic generalised arteriolar constriction is, however, not always accompanied by a contraction of the pre-arteriolar vessels. These latter may remain but moderately contracted, or even hypotonic, either generally or locally, in which case they undergo a progressive yielding and compensatory thickening. Hence it happens that if the radial arteries in a subject of persistently high blood pressure fail to share in the generalised hypertonus of the arterioles, they become dilated, tortuous, and greatly thickened. We must, then, be prepared to meet with two widely-differing types of radial artery in subjects of persistently high blood pressure—the small, straight vessel, moderately thickened, and the dilated, tortuous and highly thickened vessel. Not only may the radial artery, in consequence of persistent hypertonus, remain small and straight during many years of habitual high pressure, but it may, *per contra*, in consequence of persistent hypotonus, actually become dilated, tortuous, and thickened in subjects of habitual low pressure.

Widespread arterial thickening in subjects of habitual moderate pressure.—Sir Clifford Allbutt has pointed out that widespread arterial thickening is not infrequently met with in persons whose blood pressure is habitually moderate. This should not surprise us seeing that thickening of vessels does not necessarily increase the resistance which they oppose to the blood flow; changes in peripheral resistance are, as we have seen, essentially determined by the arterioles, and so long as a generalised arteriolar hypotonus

prevails blood pressure will remain low, even though considerable thickening of the arteries be present. As to the pathology of the arterial thickening in these cases, nothing is certainly known. We may assume that the cause is always some kind of irritation of the tissues constituting the vessel walls. Doubtless this irritation may sometimes be due to poisons acting directly upon the vascular tissues; but I believe that in many cases it results from chronic hypotonus in the manner already described. We have seen that so long as the muscular media is firmly contracted the intima, adventitia, and connective tissue, and perhaps even the yellow elastic tissue of the media, are entirely relieved from mechanical strain, the muscular fibres of the media being the sole elements in the vessel wall to be put on the stretch; but that when the muscle fibres relax all the elements of the vessel wall are stretched by the blood pressure, and that this leads to hyperplasia of the connective tissue, and to dilatation and often tortuosity of the chronically hypotonic vessels. I can have little doubt that this is the mechanism of the arterial thickening of at least many of the cases belonging to the class referred to by Sir Clifford Allbutt. This physician has been struck by the frequent occurrence of large, tortuous, and thickened radial vessels among peasants in whom the habitual blood pressure is not excessive. I suggest that in these cases the arterial changes occur as the result of the protracted radial hypotonus induced by long-continued manual labour; and I may mention in support of this view that I have noticed that in those who employ the right hand in labour more than the left the right radial displays a greater tendency to dilatation, tortuosity, and thickening than the left.

The relative size of the radial artery and the hand.—There is a fairly constant relation between the size of the radial artery and of the hand: when the hand is small the radial artery is small; when it is large the artery is large also. The largest radial arteries I have encountered belonged to an acromegalous man. Most men engaged in hard manual labour have large thickened radials; in leisured women these vessels are usually small.

Loss of vascular contractibilty through vascular degeneration.—It is assumed by some physi cians that as the arterioles undergo degeneration from senile decay and other causes their contractibility becomes greatly impaired, and that they are rendered correspondingly incapable of regulating local blood-supply in response to local requirements. Doubtless there is some ground for this assumption, but that the arterioles *as a whole* are ever gravely hampered in this respect is extremely doubtful. We may see patients in the latest stages of granular kidney capable of turning red and pale under slight provocation, and assuredly there has never yet existed a human being insusceptible of shock—that condition, i.e., in which a widespread arteriolar dilatation (chiefly in the splanchnic area) leads to a dangerously sudden rush of blood into the veins. No matter how degenerate the blood-vessels it is still by the ever-vigilant tonus of the arterioles that the blood is prevented from rushing with fatal facility into the veins; and in none is arterial degeneration so great but that a sudden and widespread failure in this function will cause the most "plethoric" person instantly to turn pale as death and to fall down unconscious.

That the degeneration of the muscular elements of the blood-vessels can never proceed beyond a certain degree is further evident from a consideration of the part they play in preventing the blood-vessels from undergoing a progressive yielding before the blood pressure. Any serious interference with this function of the vascular media would inevitably lead to such dilatation and thickening of the blood-vessels that death would soon result. We may, therefore, feel assured that a considerable functional capacity on the part of the muscular elements of the blood-vessels is absolutely essential to the continuance of life.

Abnormal arterial pulsation.—Sometimes arterial pulsation is so pronounced as to obtrude itself upon the notice of the patient—he feels a throbbing or beating where nothing of the kind should be felt. The area over which the throbbing is felt may vary considerably in extent: it may be limited to a narrow area—e.g., one temple or the epigastrium—or it may seem to involve the entire body. Such generalised pulsation is felt normally after violent muscular effort—e.g., sprinting—but it sometimes occurs "idiopathically" as a morbid phenomenon. In these cases the pulsation is most felt in the head, neck, chest, and abdomen, in the two latter regions being, of course, largely referable to the heart itself.

Arterial throbbing may be due to two causes: (*a*) powerful action of the heart causing an exceptionally large charge of blood to be driven into the arteries with each ventricular systole; and (*b*) arterial hypotonus allowing the vessel wall to yield with more than usual readiness before the pulse waves.

Localised throbbing is always due to the latter cause, but generalised throbbing may be due to one or other, or to both of these causes.

The generalised throbbing which results from muscular exertion is essentially cardiac in origin. I doubt whether arterial hypotonus takes any share in it. That the powerful contractions of the heart which result from muscular exertion are accompanied by a widespread relaxation of the systemic arterioles, notably those belonging to the muscles, is certain. Did such relaxation not take place the systemic arteries would very soon get over-distended and the left ventricle cease to deliver its normal quantity of blood into the arteries, with the result that pulmonary engorgement would inevitably ensue. Doubtless some relaxation of the vessels proximal to the arterioles also occurs. How far backwards this relaxation extends—whether, e.g., it involves arteries as large as the brachial—I cannot say, but that the relaxation is not shared by the largest arteries we may, I think, affirm with some confidence.

Consider for a moment how great is the strain to which the aorta is subjected during sprinting, when the left ventricle pumps much more than its usual charge of blood, at three times its usual rate of beat, into a greatly distended aorta. Assuming the aortic muscle fibres to relax under these circumstances, all the tissues of the aorta, including the thin adventitia, would take an equal share in the strain, and the muscle fibres of this vessel would fail in what I, at least, believe to be their essential, if not their sole, function—that, namely, of relieving by their active contraction the strain on the other tissue elements of the vessel wall. I should therefore expect the aortic muscle fibres, far from relaxing, to increase in tonicity during augmented cardiac action.

It might be argued against this view that a hypertonic aorta would not yield with sufficient readiness to receive the successive charges of ventricular blood. It must, however, be remembered that as regards the extensibility of its muscular coat the aorta stands in a very different category from the smaller arteries, such as the radials, and still more the arterioles. Not only is its muscular equipment comparatively slender, but by reason of its large bore its walls (in accordance with the formula $t = pr$) are subjected to much greater tension than are those of the smaller vessels; the tension in the aortic walls must be at least ten times that in the radial walls. Hence it happens that while an artery like the radial, when thrown into complete hypertonus, can maintain the lumen of the vessel at its practical minimum under the highest blood pressure compatible with life, the aorta, even though hypertonic, would yet yield readily to receive the ventricular blood, for it must not be forgotten that contracted muscle fibre is highly extensile provided the extensile force be adequate. My own belief is that the augmented cardiac action resulting from muscular exertion is the signal for augmented contraction on the part of the aortic muscle fibres, and that by their vigorous contraction (possibly increasing in strength with every increment in the distension of the aorta) they oppose a resistance *sui generis* to super-distension, thus relieving the strain upon all the other aortic tissues.

I conclude, then, that the arterial pulsations which are felt as the result of muscular exertion are essentially cardiac in origin, that they result from the rapid discharge into the aorta of unusually large charges of blood, and that arterial relaxation takes little or no part in their causation. Possibly the generalised pulsations which are occasionally felt in connexion with functional palpitation may sometimes own a like causation; as a rule, however, in this form of palpitation the heart pumps less than the average quantity of blood into the arteries with each beat.

So much for arterial pulsation due to heightened cardiac action. Let us now consider that form of it which results from arterial hypotonus. This variety is generally limited to particular vascular areas. We do, however, occasionally

meet with cases in which the patient complains of "throbbing all over," although there is no evidence of augmented cardiac output. Such cases can only be accounted for on the assumption that there is a widespread arterial hypotonus, in which, however, the arterioles evidently cannot share, inasmuch as a generalised arteriolar hypotonus would lead to a dangerous fall in blood pressure. Occasionally patients with Graves's disease complain of throbbing "all over the body," and there is no evidence that the individual systolic outputs of the heart are augmented in the tachycardia which accompanies this affection. We must assume that the throbbing in these cases is due to hypotonus of the larger arteries. So far as the radial arteries are concerned they are, in my experience, generally contracted in Graves's disease.

Throbbing of the head and neck from hypotonus of the carotids and their main branches is by no means rare; it may, or may not, be accompanied by hypotonus of the arterioles of the skin of the face, nose, ears, and neck, singly or together. If the small arteries in the neighbourhood of the middle and internal ear share in the dilatation, the patient may hear the pulsations, especially when the side of the head rests on a solid support such as a pillow. If the retinal arterioles dilate, pulsatile waves may be communicated to the field of vision. The question whether the arterioles of the brain ever share in this dilatation is purely speculative. One is tempted to assume that they may sometimes do so, because it not infrequently happens that "a rush of blood to the head" is attended with mental confusion. Such a rush of blood to the head often occurs as part and parcel of an ordinary flush storm. It may also occur in overfed plethoric persons, especially if in addition to the plethora the blood pressure is high and there is a tendency to nose-bleeding. I am in a position to affirm from considerable experience that cases of this kind can often be much relieved, if not cured, by such means as purgation, bleeding, and above all restriction of the diet. The varieties of flushing of the face from vaso-motor causes are too numerous to be discussed here in detail, but the simple emotional flush, that which occurs after a meal, and the facial flush which occurs as part of the flush storm, may be mentioned.

I have seen the whole of the head, neck, and chest so markedly flushed in Graves's disease as to suggest scarlet fever. I have known a man to be attacked for hours together with such violent flushing of the head and neck, accompanied by exaggerated pulsations, as to make the skin appear as red and turgid as a cockscomb. The patient was a brilliant, highly neurotic student, whose career was entirely destroyed by this misfortune. When we reflect how slight must be the central vaso-motor change to cause arterial hypotonus or the reverse, the wonder is rather that morbid vaso-motor phenomena are not more common than they are.

Pulsating aorta.—One of the most familiar forms of arterial throbbing due to hypotonus is afforded by the phenomenon known as "pulsating aorta." There is marked pulsation in the abdomen, especially in the epigastric region. In this connexion it must not be forgotten that in the upper part of the epigastrium the aorta belongs to the thoracic portion, lying as it does behind the diaphragm: a point midway between the sterno-xiphoid articulation and the umbilicus marks the beginning of the abdominal aorta.

This hypotonic form of aortic pulsation is frequently met with in highly nervous women. It is generally attended with tachycardia and other evidence of cardio-vascular irritability. The patients are often thin, so that the vessel can readily be isolated and felt as a tube about the thickness of a stout ruler undergoing violent shock-like pulsations. The condition is so frequently mistaken by the student for aneurysm that Sir William Jenner formulated the well-known aphorism, "The last thing to be thought of in morbid epigastric pulsation is aneurysm"; but these cases should present no difficulty in diagnosis, for apart from the rarity of abdominal aneurysm as compared with this functional form of pulsation, in the latter condition careful examination generally discloses the normal tubular shape of the aorta.

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Here I am led to conclude these articles. I am, indeed, far from having exhausted my subject, but I feel I have already trespassed too largely on the indulgence of the Editor.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Should a Medical Man Drive His Own Car?

IN a medical contemporary a practitioner raises this question, and remarks that driving from one patient's house to another the thoughts and attention which should be occupied with the contemplation of the cases under treatment are instead diverted to the management of the car, to the detriment of the patient's interests. Of course, this objection, if it exists, which I question, is solved by employing a chauffeur. Personally, with a good many medical motorists, I find that driving myself makes me fresher and keener to undertake each case as it is approached. It is also a common experience that driving and steering when indulged in daily become automatic, and really leave the brain free for turning over the points of one's "cases." Another point which has been raised is whether driving interferes with the manual dexterity needed for surgical operations. Those consulting surgeons to whom I have spoken on this subject assure me that such is not the case, and both my colleagues and myself on the staff of a local cottage hospital, where we do a considerable amount of operative work, are of the same opinion.

Concerning Horns.

Some form of warning signal must, of course, be carried on all cars, and it certainly seems reasonable that medical men of all people should employ a "road clearer" that does not give offence to anyone. Electrical "buzzers" need accumulators and cannot be quite classed as "musical"; the ordinary horn comes under the same objection as to sound, and in addition the reeds may break or the bulbs may perish, though the fitting of a leather cover prolongs the life of the latter. A real novelty is the "testophone," which gives a multi-note musical signal, is light in weight, and is easy of attachment. A popular instrument is the "Gabriel" horn, which should be fitted against the side of the car, and is operated by the waste exhaust gases. Usually a small foot pedal, placed in a convenient position on the floor of the car, works the horn, but if preferred a Bowden wire attachment, with a hand lever for fixing to the steering column, can be supplied. For small cars up to 10 h.p. the No. 1 size is suitable, and for larger cars the No. 2 or 3. In attaching it is advisable not to place the valve too near the engine where the exhaust is likely to be too quick. The place suggested is at the outer end of the muffler and good quality 1-inch steam hose must be used for leading the exhaust from the valve to the horn.

A Useful Touring Map.

Messrs. A. Duckham and Co., Limited, have issued a section map of England and Wales consisting of some 50 parts. It is to the scale of eight miles to the inch, and is quite up to date, so that the roads marked in red may be relied upon as being good motoring roads. An index map, numbered and marked in the same way as the various sections, is included, so that the portions needed for any given tour may be readily selected.

The Cost of Motoring Guaranteed.

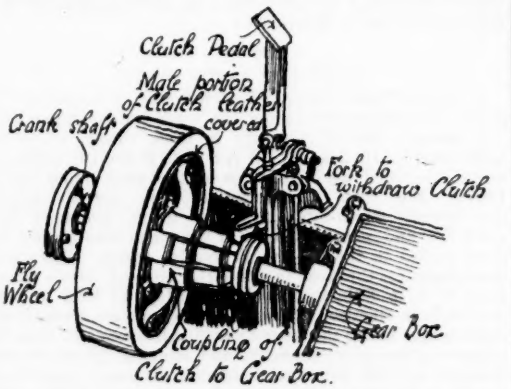
The London Motor Garage Company, Limited, of 33–37, Wardour-street, London, W., have recently sent me particulars of their hire-purchase, up-keep, and maintenance agreements. They provide and pay wages of a competent driver, maintain in good order, and provide all necessaries for running various powered Charron cars for a fixed sum per year, varying from £375 for a 8–10 h.p. car to £480 for a 16–22 h.p.; this includes insurance, providing another car should the customer's car break down, and allows for travelling 6000 miles in the year, beyond which an excess per mile is charged.

The Motor Maintenance Company of 11 and 12, Weymouth-mews, London, W., also issue inclusive maintenance contracts, covering every expense connected with the car, and varying in cost according to the horse-power, from £200 to £350 per annum.

Clutches and their Idiosyncrasies.

A large number of cars are still manufactured, and rightly too, I believe, with the leather-faced coned friction form of transmitting the power from the engine to the gearbox.

Practically in all these kinds the fly-wheel is hollowed out to receive the male part, which latter, by some form of coupling, is connected to the first motion shaft in the gear-box, as shown in the accompanying sketch. In some patterns the male part recedes from the female, in others the female from the male, while in another variety the male disengages by pushing forward in lieu of being pulled back, but in all of these the principle is the same. A powerful spring, or on some cars several springs keep the two parts in contact, and a lever worked by a pedal, of either the piano "push down" kind or one of the now more popular "push forward" forms, allows of the separation of the male from the female portion. It is, of course, essential that the clutch should always



permit of the engine being disconnected from the transmission gear, and also that the engagement should be gradual, otherwise there may be a jar on the transmission gear and consequent damage. Those who have had cars will, I am sure, on consideration, agree with this aphorism: "Most breakdowns, after putting aside those due to ignition torts (which now that the high-tension magneto is the general method of exploding the mixture are not as prevalent as they used to be), are the result of a fierce clutch, and could therefore have been avoided by the application of collan or castor oil." The old saying that there is nothing like leather seems to apply to clutches, and certainly dressed harness leather, previously soaked in castor oil, cut from the thickest part of the butt, answers admirably, provided it is of the same thickness throughout, put on well stretched in segments, with the ends butted and scarfed, and with the screws or fixing rivets countersunk, so that, even if the leather does wear, they do not project, and with the ends of the screws or rivets on the inner side of the cone riveted over so that they may not work loose. In order that the leather surface may be quite true it is usually spun in the lathe, and even then there may be fierceness. To overcome this many makers fit three or four buffer springs under the leather, equally distant apart from one another, so as to cause a slight bulging, which is gradually overcome as the clutch engages, so that the male and female parts do not become locked too suddenly. I noticed recently another method of achieving this result at Messrs. Hobson's on their Delahaye car, in which beneath the leather is a rubber ring all round the clutch, which becomes compressed as the male part enters, and so effects the same result. Another cause of this objectionable condition is the stiff working of the mechanism that withdraws the male member, for if it is in some part too tight, from want of lubrication or other cause, the clutch movement may not follow the driver's foot, and so the letting in of the clutch is done in a series of small jerks. This also happens if the leather has irregularities or "atheromatous patches" on its surface. Castor oil or collan oil makes the leather softer and cures slight cases; severe ones need the surgeon's knife, as represented by a spin in the lathe. Lubrication and attention to the moving parts will remedy the former complaint. The objection to leather is that if it becomes too greasy the clutch may slip, which is nearly as bad as too fierce a clutch. To have the engine pulling well and not to be able to transfer its power to the wheels is annoying. On a hill, if a sprag is not fitted and the brakes are out of order, it is even more serious than hurtful to one's pride, for it may necessitate the treatment of the driver as well as of the car. Keeping the leather free from excess of grease, and dusting fuller's earth on if it is too oily, will generally prevent these troubles, or if the slipping is the result of too weak a clutch spring the tension can be increased, if, as is now the rule, an adjustment is fitted, or, if there is none, the spring may be made stronger by packing it up with washers. A good substitute for leather, and one, too, which will hold, no matter how oily it may be, is Frood's patent fibre. Practically every motor-bus in London uses this material for its clutches as well as brakes.

The Ferodo and Bonded Asbestos Fibres are water- and grease-proof. They have a high coefficient of friction, and from experiments recently made by Professor Ernest Walson in the Siemens Electrical Engineering Laboratory at King's College, London, there is no question that they are, as the motor-buses have discovered, ideal substances for friction clutches and brakes. The Herbert Frood Company, Limited, of Sovereign Mills, Chapel-en-le-Frith, will, I understand, be pleased to line any clutch sent, provided they are informed as to the thickness needed, and in that case only the male part need be sent. Clutches made of this material work well, are not fierce, do not burn, and are unaffected by oil. They need an occasional application of graphite grease.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8379 births and 4323 deaths were registered during the week ending March 19th. The annual rate of mortality in these towns, which had steadily declined in the six preceding weeks from 17·0 to 13·6 per 1000, did not exceed 13·5 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these towns averaged 15·1 per 1000; the mean rate in London during the same period was also equal to 15·1. The lowest reported annual rates of mortality in the 76 towns were 3·9 in Rotherham, 4·3 in King's Norton, and 5·8 in Hornsey and in Handsworth; the rates in the other towns ranged upwards, however, to 19·2 in Ipswich, 19·4 in Great Yarmouth, 24·2 in Huddersfield, and 27·1 in Rochdale. In London the recorded death-rate did not exceed 13·2 per 1000. The 4323 deaths registered in the 76 towns during the week showed a further decline of 38 from the numbers returned in recent weeks, and included 334 which were referred to the principal epidemic diseases, against 328 and 289 in the two preceding weeks; of these 334 deaths, 134 resulted from whooping-cough, 83 from measles, 38 from diarrhœa, 36 from diphtheria, 31 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 76 towns in the week from these epidemic diseases was equal to 1·0 per 1000, against 0·8, 1·0, and 0·9 in the three preceding weeks. No death from any of these epidemic diseases was registered in East Ham, Hornsey, St. Helens, Rochdale, York, or in nine other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·1 in Devonport, 3·3 in Barrow-in-Furness, 3·8 in Hastings, and 4·8 in Ipswich. The fatal cases of whooping-cough in the 76 towns, which had been 112 and 122 in the two preceding weeks, further rose to 134 in the week under notice, and caused annual death-rates equal to 1·3 in Birkenhead and in Newport (Mon.), 1·9 in West Hartlepool, and 2·5 in Devonport and in Barrow-in-Furness. The deaths from measles, which had been 88 and 45 in the two previous weeks, rose again to 83; the highest death-rates from this disease during the week were 1·5 in Stockport and in Burnley, 2·2 in Hanley, 3·8 in Hastings, and 4·1 in Ipswich. The 38 deaths attributed to diarrhœa showed but a slight increase upon the numbers in recent weeks. The fatal cases of diphtheria, which had been 49 and 32 in the two previous weeks, were 36 in the week under notice, and included 10 in London and its suburban districts, 5 in Manchester, 3 in Nottingham, and 2 both in Birmingham and in Burnley. The 31 deaths from scarlet fever were fewer by three than those in the previous week; 6 occurred in London, 4 in Birmingham, 4 in Liverpool, and 4 in Manchester and Salford. Only 12 deaths were referred to enteric fever

in the 76 towns during the week. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had declined in the 22 preceding weeks from 2819 to 1754, had further fallen to 1713 on March 19th; 180 new cases of this disease were admitted to these hospitals during the week, against 211 and 199 in the two preceding weeks. The Metropolitan Asylums Hospitals contained no case of small-pox on March 19th. Of the 1231 deaths registered in London during the week under notice, 238 were referred to pneumonia and other diseases of the respiratory system, against numbers declining steadily from 425 to 279 in the five preceding weeks; these 238 deaths were 173 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 30, or 0·7 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were duly certified in Leeds, Bristol, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Leicester, and Salford, and in 52 other smaller towns; the 30 uncertified causes of death in the 76 towns included 5 in Liverpool, 3 in London, 3 in St. Helens, and 2 each in Birmingham, South Shields, and Gateshead.

In 76 of the largest English towns 7755 births and 4448 deaths were registered during the week ending March 26th. The annual rate of mortality in these towns, which had steadily declined in the seven preceding weeks from 17·0 to 13·5 per 1000, slightly increased to 13·9 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these towns averaged 15·0 per 1000; the mean rate in London during the same period was also equal to 15·0. The lowest reported annual rate of mortality in the 76 towns during the week were 4·2 in Hornsey, 6·8 in King's Norton, 7·7 in East Ham, and 7·8 in Willesden, all being suburban districts; the rates in the other towns ranged upwards, however, to 19·8 in Huddersfield, 20·3 in Tynemouth, 20·4 in Grimsby, 21·3 in Stockport, and 23·7 in Swansea. In London the recorded death-rate last week did not exceed 13·5 per 1000. The 4448 deaths registered in the 76 towns during the week showed an increase of 127 upon the number in the previous week, and included 317 which were referred to the principal epidemic diseases, against 289 and 335 in the two preceding weeks; of these 317 deaths, 134 resulted from whooping-cough, 78 from measles, 42 from diphtheria, 29 from scarlet fever, 19 from diarrhœa, and 15 from enteric fever, but not one from small-pox. The mean annual rate of mortality in the 76 towns during the week from these epidemic diseases was equal to 1·0 per 1000, and corresponded with the rate in the previous week. No death from any of these epidemic diseases was registered last week in Brighton, Norwich, Derby, Halifax, York, or in 13 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·2 in South Shields, 2·4 in Liverpool, 2·5 in Stockport, and 4·5 in Hanley. The fatal cases of whooping-cough in the 76 towns, which had increased from 100 to 134 in the four preceding weeks, were again 134 in the week under notice, and caused annual death-rates equal to 1·3 in West Hartlepool and in South Shields, 1·5 in Hastings, and 1·6 in Barrow-in-Furness. The 78 deaths from measles showed a decline of 6 from the number in the previous week; the highest death-rates from this disease during the week were 1·3 in Merthyr Tydfil, 1·5 in Burnley and in Stockport, and 3·0 in Hanley. Of the 42 deaths referred to diphtheria, showing a slight increase on the numbers in the two preceding weeks, 15 occurred in London and its suburban districts, 3 in Manchester and Salford, and 3 in Hull. The fatal cases of scarlet fever, which had been 34 and 31 in the two previous weeks, further declined last week to 29, and included 10 in London, 5 in Liverpool, 4 in Manchester and Salford, and 3 in Blackburn. The 19 deaths attributed to diarrhœa were fewer than in any previous week of this year. The 15 deaths referred to enteric fever only exceeded by 3 the low number in the previous week; 6 were returned in London and 2 in Salford. The number of scarlet fever patients under treatment in the metropolitan asylums and in the London Fever Hospital, which had steadily declined in the 23 preceding weeks from 2819 to 1713, had further fallen to 1650 on March 26th; 173 new cases of this disease were admitted to these hospitals during the week, against 211, 199, and 180 in the three preceding weeks. The metropolitan asylums hospitals contained no case of small-pox on March 26th. Of the 1263 deaths registered in London during the week under notice 261 were referred to pneumonia and other diseases of the respiratory system, showing an increase of 23 upon the low number in the previous week, but were 121 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 36, or 0·8 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death during the week were duly certified in Leeds, Bristol, Bradford, West Ham, Newcastle-on-Tyne, Nottingham, Leicester, Salford, and in 49 other smaller towns; the 36 uncertified causes of death in the 76 towns included 8 in Liverpool, 4 in Preston, and 3 both in Birmingham and in Manchester.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 953 births and 612 deaths were registered during the week ending March 19th. The annual rate of mortality in these towns, which had been equal to 16·3 and 17·2 per 1000 in the two preceding weeks, declined again to 16·9 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these towns averaged 17·6 per 1000, and exceeded by 2·5 the mean rate during the same period in the 76 largest English towns. The annual death-rates for the week in these eight Scotch towns ranged from 15·1 in Edinburgh and in Paisley, to 19·8 in Leith and 22·1 in Dundee. The 612 deaths from all causes in the eight towns during the week showed a decline of 10 from the number in the previous week, and included 72 which were referred to the principal epidemic diseases, against 79 and 82 in the two preceding weeks. These 72 deaths were equal to an annual rate of 2·0 per 1000; the mean death-rate from the same diseases in the 76 English towns did not exceed 1·0 per 1000. These 72 deaths in the Scotch towns included 35 from measles, 12 from diarrhœa, 10 from whooping-cough, 8 from diphtheria, 4 from scarlet fever, and 3 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 40 and 46 in the two preceding weeks, declined to 35 in the week under notice, of which 20 occurred in Glasgow, 6 in Dundee, 5 in Greenock, and 3 in Leith. The 12 deaths attributed to diarrhœa corresponded with the number in the previous week, and included 5 in Glasgow, 3 in Edinburgh, and 2 in Dundee. The 10 fatal cases of whooping-cough were fewer by 2 than those in the previous week; 6 were returned in Glasgow and 3 in Edinburgh. The deaths referred to diphtheria, which had been 12 and 5 in the two preceding weeks, rose again to 8 in the week mentioned, of which 5 were returned in Glasgow and 2 in Aberdeen. The 4 fatal cases of scarlet fever were within 1 of those in the previous week; and the 3 deaths referred to "fever" included 2 in Glasgow and 1 in Perth. The deaths in the eight towns referred to diseases of the respiratory system, which had been 114 and 107 in the two preceding weeks, further declined in the week under notice to 100, and were 87 below the number returned in the corresponding week of last year. The causes of 9, or 1·5 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·7 per cent.

In eight of the principal Scotch towns 850 births and 556 deaths were registered during the week ending March 26th. The annual rate of mortality in these towns, which had been equal to 17·2 and 16·9 per 1000 in the two preceding weeks, further declined to 15·3 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these towns averaged 17·4 per 1000, and exceeded by 2·4 the mean rate during the same period in the 76 largest English towns. The annual death-rates for the week in these eight Scotch towns ranged from 12·3 and 12·6 in Edinburgh and Perth, to 20·2 in Dundee and 21·3 in Greenock. The 556 deaths from all causes in the eight towns during the week showed a further decline of 56 from the numbers returned in the two preceding weeks, and included 77 which were referred to the principal epidemic diseases, as against 82 and 72 in the two previous weeks. These 77 deaths were equal to an annual rate of 2·1 per 1000; the mean death-rate from the same diseases in the

76 English towns last week did not exceed 1·0 per 1000. These 77 deaths in the Scotch towns included 45 from measles, 9 from diarrhœa, 8 from whooping-cough, 6 from scarlet fever, 6 from diphtheria, and 3 from "fever," but not one from small-pox. The fatal cases of measles in the eight towns, which had been 46 and 35 in the two previous weeks, rose again to 45 in the week under notice, of which 19 occurred in Glasgow, 9 in Dundee, 7 in Greenock, 4 in Leith, and 3 both in Edinburgh and in Paisley. The 9 deaths attributed to diarrhœa were fewer by 3 than the number returned in each of the two preceding weeks. The 8 fatal cases of whooping-cough showed a further decline from the numbers in the two previous weeks, but included 6 in Glasgow. Of the 6 deaths from scarlet fever, 2 occurred in Glasgow; and 3 of the 6 fatal cases of diphtheria were returned in Aberdeen. The 3 deaths referred to "fever" corresponded with the number in the previous week; 2 in Paisley were certified as cerebro-spinal fever, and a fatal case of enteric fever was recorded in Greenock. The deaths in the eight towns referred to diseases of the respiratory system, which had been 114, 107, and 100 in the three preceding weeks, were again 100 in the week under notice, and were 80 below the number in the corresponding week of last year. The causes of 16, or 2·9 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 578 births and 419 deaths were registered during the week ending March 19th. The mean annual rate of mortality in these towns, which had been equal to 22·8, 22·4, and 22·0 per 1000 in the three preceding weeks, further declined to 19·0 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these Irish towns averaged 22·0 per 1000, whereas the mean rate during the same period did not exceed 15·1 in the 76 largest English towns and 17·6 in the eight principal Scotch towns. The annual death-rate for the week was equal to 18·4 in Dublin, 21·7 in Belfast, 19·9 in Cork, 9·6 in Londonderry, 19·1 in Limerick, and 13·6 in Waterford; the mean annual death-rate in the 16 smallest of the Irish towns was equal to 17·3 per 1000. The 419 deaths from all causes in the 22 town districts during the week showed a further decline of 63 from the numbers in the three preceding weeks, and included 34 which were referred to the principal epidemic diseases, against 30 and 28 in the two previous weeks; these 34 deaths were equal to an annual rate of 1·5 per 1000; in the 76 English towns the mean rate from the same diseases did not exceed 1·0 per 1000, while in the eight Scotch towns it was equal to 2·0. The 34 deaths from these diseases in the Irish towns included 21 from whooping-cough, 5 from measles, 4 from diarrhœa, 2 from scarlet fever, 1 from diphtheria, and 1 from enteric fever, but not one from small-pox. The fatal cases of whooping-cough, which had been 20 and 15 in the two preceding weeks, rose again to 21 in the week under notice, of which 12 occurred in Belfast, 3 in Drogheda, and 2 each in Lisburn and in Tralee. All the 5 fatal cases of measles and the 2 of scarlet fever were returned in Belfast; and 2 of the 4 deaths from diarrhœa, as well as the fatal case of enteric fever, occurred in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 146, 118, and 113 in the three preceding weeks, further declined to 104 in the week mentioned. The causes of 20, or 4·8 per cent., of the deaths registered in the Irish towns were not certified; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·7 per cent., and in the eight principal Scotch towns 1·5 per cent.

In Dublin 242 births and 175 deaths were registered during the week ending March 26th. The annual rate of mortality in this city, which had steadily declined in the four preceding weeks from 28·0 to 18·4 per 1000, rose again to 22·6 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in the city averaged 24·1 per 1000, whereas the mean rate in London during the same period did not exceed 14·1 per 1000. The 175 deaths in Dublin last week included 6 which were referred to the principal epidemic diseases, against 9, 6, and 5 in the three preceding weeks. The annual rate from these epidemic diseases did not exceed 0·8 per 1000; the rate from the same diseases in London last week was equal to 1·0. The 6 deaths from these epidemic diseases in Dublin last week included 2 from whooping-cough, 2 from diarrhœa, and 1 each from enteric fever and from measles. Of the 175 deaths from all causes 64, or nearly 37 per cent., were recorded in public institutions. The causes of 3, or 1·7 per cent., of the deaths were not certified. In Belfast 208 births and 125 deaths were registered during the week under notice. The annual death-rate in this city, which had been equal to 21·6 and 21·7 in the two preceding weeks, declined to 16·7 in the week under notice, and was lower than in any previous week of this year. Of the 125 deaths from all causes, 14 resulted from the principal epidemic diseases, equal to an annual rate of 1·9 per 1000, and included 10 from whooping-cough, 3 from measles, and 1 from diarrhœa. The 125 deaths included 27 of infants under one year of age and 29 of persons aged upwards of 60 years; 3 resulted from violence, and 31, or nearly 25 per cent., of the deaths occurred in public institutions. All the causes of death registered in Belfast during the week were, with one exception, duly certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeon: C. S. Facey to the *President*, for eight months' civil hospital course. Civil Practitioner: E. A. King to be Surgeon and Agent at Burntisland.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel F. H. M. Burton, at present in charge of the Military Hospital at Hounslow, has been selected to succeed Lieutenant-Colonel F. W. Caton-Jones in charge of the Military Hospital at Colchester. Lieutenant-Colonel B. T. McCreery, lately commanding the Station Hospital, Agra, has been temporarily placed on half-pay owing to ill-health. Lieutenant-Colonel H. A. Haines has arrived home from Fyzabad on completion of a tour of foreign service. Lieutenant-Colonel H. Carr, from Netley, Lieutenant-Colonel H. E. Cree, from Chatham, and Lieutenant-Colonel G. F. H. Marks, from Newcastle-on-Tyne, have embarked for India. Major W. T. Mould and Major A. W. Bewley have been selected for increased pay under Article 317 of the Royal Warrant. Major K. M. Cameron, Staff-Surgeon, Army Headquarters, Simla, on completion of his Indian tour of service, has been posted to Aldershot for duty. Major B. Forde, from Bloemfontein, has joined at Wynberg. Major J. Richie, from Woolwich, on arrival in India, has been posted to Multan. Major J. C. Morgan has been transferred from Cahir to Dublin. Major P. Collingwood, from Hong-Kong, has been appointed to Devonport. Major H. W. Grattan, lately on special duty in the Anti-typhoid Vaccine Department at the Royal Army Medical College, has arrived at Lucknow. Major E. T. Inkson, V.C., has been transferred from Bangalore to St. Thomas's Mount. Captain S. M. W. Meadows, on arrival from India, has been posted to the Eastern Command. Captain H. C. Hildreth, from Maymyo, has been posted to the Irish Command, and Captain M. D. Ahern, from Mandalay, has been posted to Ireland. Captain J. W. S. Seccombe has been transferred from Bangalore to Jullundur. Captain W. Davis, on exchange to India, has been appointed to the station hospital, Bareilly, for duty. Captain F. M. M. Ommanney has been transferred to the Home Establishment. Captain E. L. Moss, from Chaubattia, has joined at the station hospital, Bareilly, for duty. Captain A. E. Thorp, from Tidworth, has been appointed to Bulford Camp. Captain F. J. Palmer, specialist in operative surgery at Cork, on arrival in India, has been posted to Meerut. Lieutenant A. L. Foster, Lieutenant C. M. Rigby, Lieutenant T. S. Eves, and Lieutenant L. Murphy have embarked for a tour of service in India. Lieutenant E. D. Caddell has been transferred from Ambala to Subathu, and Lieutenant C. W. Bowle has been transferred from Dalhousie to Multan.

INDIAN MEDICAL SERVICE.

The official announcement of the promotion of the

Director-General of the Indian Medical Service, Lieutenant-Colonel Charles Pardey Lukis, to Surgeon-General (dated Jan. 1st) appears in the *London Gazette* of March 22nd.

The King has approved of the following appointments:—To be Lieutenants (dated July 31st, 1909): Charles Harold Smith, Alan MacDonald Dick, Thomas John Carey Evans, Robert Inglis Binning, Maurice James Holgate, Trevor Laurence Bomford, Graham Rigby Lynn, Louis Hope Lovat Mackenzie, John McDougall Eckstein, William Andrew Morton Jack, Alexander Charles Anderson, Duncan Gordon Cooper, David Arthur, William Leonard Forsyth, Keshav Sadishiv Thakur, Mohamed Abdur Rahman, Edward Humfrey Vere Hodge, Gerald Tyler Burke, Herbert Robert Burnett Gibson, and Mark Alleyne Nicholson.

The King has also approved of the following retirements:—Lieutenant-Colonel John Patrick Barry (since deceased), (dated Dec. 8th, 1909); Lieutenant-Colonel Richard Rose Weir (dated Feb. 21st, 1910).

Lieutenant-Colonel G. F. A. Harris, at present officiating as Inspector-General of Civil Hospitals in the United Provinces, has been appointed Inspector-General of Civil Hospitals in Bengal Presidency, with effect from March 1st. Lieutenant-Colonel C. C. Manifold, Bengal, is appointed to officiate as Inspector-General of Civil Hospitals in the United Provinces. Lieutenant-Colonel J. E. Fooks has had his leave extended until Dec. 5th next. Major C. A. Lane has arrived home on leave. Major R. D. Green, Civil Surgeon, Mymensingh, Eastern Bengal, has been granted combined leave for two years with effect from Feb. 7th. Major C. H. Bensley, officiating superintendent, Central Jail, Jubbulpore, has been granted 14 months' leave with effect from March 9th. Captain C. Godson has been appointed Civil Surgeon, Goalpara, Eastern Bengal. Captain Gillitt has been confirmed in his appointment as superintendent of the Central Jail at Buxar. Captain R. K. White has been posted for temporary duty at the disposal of the Chief Commissioner of the Central Provinces. Captain G. Hacheson, civil surgeon at Aligarh, Central Provinces, has been appointed to the visiting medical charge of the Bulandshahr District, vice Captain J. D. Graham. Captain A. D. Stewart has been given civil medical charge of Almora in addition to his military duties during the absence on leave of Captain G. T. Milchem. The services of Captain J. F. James have been placed temporarily at the disposal of the Government of Eastern Bengal and Assam. Captain A. T. Pridham has been appointed to the medical charge of the First Battalion, Eighth Gurkha Rifles, vice Captain C. D. Franklin. Captain A. W. Overbeck-Wright has been selected for temporary civil employment in the Jail Department at Dacca under the Government of Eastern Bengal and Assam.

TERRITORIAL FORCE.

Royal Field Artillery.

1st South Midland (Gloucestershire) Brigade: Surgeon-Captain W. J. Hill resigns his commission (dated Feb. 8th). 1st Welsh (Howitzer) Brigade: Surgeon-Captain David A. Davies to be Surgeon-Major (dated July 1st).

Royal Army Medical Corps.

3rd Lowland Field Ambulance: Lieutenant William K. Macdonald resigns his commission; J. Young to be Lieutenant (dated Feb. 8th).

1st Welsh Field Ambulance: Edmund Victor Connellan to be Lieutenant (dated Feb. 1st).

3rd Welsh Field Ambulance: Captain George A. Stephens to be Major (dated Sept. 2nd, 1908).

1st London (City of London) Field Ambulance: Duncan Campbell Lloyd Fitzwilliams to be Lieutenant (dated Jan. 3rd, 1910).

For attachment to Units other than Medical Units.—Ernest August Boxer to be Lieutenant (dated Nov. 24th); Frederick Reginald Sutton to be Lieutenant (dated Jan. 14th); Henry Halton (late Surgeon-Captain, 1st Lancashire Royal Engineers, Volunteers) to be Captain (dated Feb. 1st); and John Bart Rous to be Lieutenant (dated Feb. 8th).

Attached to Units other than Medical Units.—Captain John B. Jamieson to be Major (dated July 31st).

HONORARY SURGEONS TO THE VICEROY OF INDIA.

The following appointments have been made to the personal staff of His Excellency the Viceroy of India:—To be Honorary Surgeons (dated Jan. 1st, 1910): Surgeon-General A. T. Sloggett, C.M.G., R.A.M.C., Principal Medical Officer, 6th (Poona) Division; Colonel R. H. Forman, R.A.M.C., Principal Medical Officer, Bombay Brigade; Lieutenant-Colonel R. S. F. Henderson, R.A.M.C., Secretary to the Principal Medical Officer, His Majesty's Forces in India.

THE SPECIAL RESERVE.

We learn that, as the conditions of service become better known, the Special Reserve is becoming more popular. There are two categories in this force: (*a*) those who must be trained as soldiers and instructed in the technical methods of military service; and (*b*) those whose duties will be cognate to their occupations as civilians, and who therefore need little training. Reservists of the former class, Artillery, Infantry, and certain companies of Royal Engineers, must be trained in barracks and in the field, and when the force was instituted in December, 1907, instructions were issued for their organisation. In November, 1908, enlistment was commenced for the Army Service Corps and Royal Army Medical Corps in Class (*a*), and arrangements have been made for their organisation and training. Later in the same month provision was made for the enlistment of a large force of Army Service Corps and Royal Army Medical Corps in category (*b*) of the Special Reserve—that is, "serving and efficient members of the Territorial Force of the branch of the service they wish to join," who undertake the Special Reserve liability, qualified members of the St. John or St. Andrew Ambulance Associations being eligible for the Royal Army Medical Corps. They undertake the liability of being called out for permanent service at home or abroad when the Army Reserve is called out, and on mobilisation become in all respects soldiers of the Regular Army.

THE TERRITORIAL FORCE RESERVE.

A special Army Order has been issued approving of the creation of the Territorial Force Reserve. The privilege of joining the Territorial Force Reserve may be granted to individual officers, non-commissioned officers, and men by county associations acting on the recommendation of the commander of the unit to which it is proposed to attach the reservists. Officers are eligible to join the force who have completed four years' service as officers in any of the military forces of the Crown and do not belong to the General Reserve of Officers or to the Special Reserve.

FIRE AT HASLAR HOSPITAL.

A fire occurred at Haslar Hospital on March 23rd, which fortunately was unattended by personal injuries. The roof of the kitchen block was badly damaged, but the patients in the hospital were at no time in danger.

FOREIGN UNIVERSITY INTELLIGENCE.

Berlin: Dr. Georg Lockemann, *privat-docent* of Chemistry, has been granted the title of Professor.—*Clermont* (*Medical School*): Dr. Mornac has been appointed Professor of Internal Pathology in succession to Dr. Fouriaux.—*Düsseldorf* (*Academy of Practical Medicine*): Dr. Gustav Pfalz, Director of the Municipal Eye Clinic, has been appointed Professor of Ophthalmology.—*Göttingen:* Dr. Friedrich Port, assistant in the Medical Clinic, has been recognised as *privat-docent* of Medicine.—*Grenoble* (*Medical School*): Dr. Léger has been appointed Professor of Natural History in succession to Dr. Bordier, deceased.—*Königsberg:* Dr. Rehn, assistant in the University Surgical Clinic, has been recognised as *privat-docent* of Surgery.—*Leipsic:* Dr. Heinecke, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Munich:* Dr. Eugen v. Malaisé has been recognised as *privat-docent* of Neurology.—*Paris:* Dr. F. Vidal, *agrégé*, has been appointed Professor of Internal Pathology in succession to the late Dr. Brissaud. Dr. Ch. Achard, *agrégé*, has been appointed Professor of General Pathology and Therapeutics in succession to Dr. Bouchard.—*Vienna:* Dr. Franz Erben of Prague has been recognised as *privat-docent* of Medicine.

Correspondence.

"Audi alteram partem."

THE BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH.

To the Editor of THE LANCET.

SIR,—All the chiefs of laboratories to whom I have spoken regret, as I do, that the Beit Fellows should be required to devote the whole of their time to their authorised research. The best men are holding demonstratorships or minor appointments, working to make their way on to hospital staffs. The Beit Fellowships under the present rules can be given to none of these men.

There are very few or no scientific posts waiting for men who agree to devote the whole of their time to these Fellowships. At the end of their three years the Fellows will be no better, but rather worse, placed than others for succeeding in their careers. An able man in a small portion of his time can effect infinitely more than a second-rate man in his whole time. I do not wish to say a word against any of the Fellows chosen in the first selection, but I think the electors cannot hope to find a succession of first-rate men to fill the 30 Fellowships under the present conditions. The heads of laboratories where research work of recognised value is done might have been trusted to disburse sums allotted them. This would, in my opinion, lead to far more fruitful results. They know the men who hold minor appointments, could choose the best and guarantee getting good work out of them.

I am, Sir, yours faithfully,

London, March 22nd, 1910. LEONARD HILL.

THE CONTROL OF SCARLET FEVER AND HOSPITALS FOR INFECTIOUS DISEASES.

To the Editor of THE LANCET.

SIR,—With reference to Dr. Crookshank's address published in your journal, may I invite his attention to the great difference existing in the promptitude with which cases of scarlet fever are notified and admitted into the hospitals of London and the provinces? In the latter, it is by no means unusual for cases to be detained until desquamation has so far advanced that the isolation hospital becomes a weak factor in limiting the dissemination of the disease through the district. If cases of this disease can be treated with impunity in the wards of general hospitals, I fail to see why they cannot be safely treated at the homes of the patients, and if so their classification as infectious maladies is surely a misnomer; I am nevertheless certain that we should object to have one of our own children suffering from an ordinary ailment brought into close proximity to a patient afflicted with scarlet fever.

I remember a case of diphtheria being treated in a block provided with only one ward kitchen, bath, and w.c., in which the unfortunate patient contracted enteric fever resulting in death, a calamity which could probably have been prevented had due precautionary measures been taken. However capable the matron may be she cannot be continually on duty in the wards day and night, and however careful the nurses may be, one must remember that they are only human and are therefore liable to error. I must admit that I do not attribute the infective activity of scarlet fever to cutaneous detritus as some authorities do. Moreover, a nurse who is constantly in a ward becomes a ready vehicle for contagion, whereas a medical man who seldom comes into immediate contact with the patients is not so likely to communicate the disease.

The temperature of a ward reserved for the treatment of diphtheria varies considerably from that of a ward set apart for scarlet fever, and there can be little doubt that overheated wards are often most injurious and encourage suppuration. Scarlet fever as a rule causes less constitutional disturbance than either diphtheria or enteric fever, and this seems to constitute an important indication for treatment in different wards. I cannot understand what economy would result from the nursing point of view, because a large ward with all the beds occupied would obviously necessitate an increased staff. I am of opinion that in many institutions the blocks are placed unnecessarily widely apart, and are on this account more difficult to work and supervise. The ambulance is, in my opinion, always open to suspicion, being so constructed as to render thorough disinfection impossible.

I have known of cases being sent to the hospital where the nurse and patient have been packed in with all the dirty bedding and rubbish from the house, with the tacit permission, if not by the express orders, of the sanitary authorities of the district. The procedure, of course, necessitated the continual opening and closing of the ambulance door. The laundry and disinfecting chamber constitute one room, the bedding being transferred from the disinfector to the laundry packed with soiled and infected linen; and yet this arrangement of buildings appears to merit the sanction of the Local Government Board.

A public conveyance driven by an ordinary cabman is frequently employed for the removal of infected bedding and clothes from the house to the disinfector, no precautions as the wearing of an overall or even the washing of his hands being taken by the man in charge of the vehicle before returning to his duties at the station or on the rank.

The majority of isolation hospitals become during epidemic periods overcrowded, and although built under Local Government Board supervision, and constructed for the accommodation of a limited number of beds, very little attention is paid to these restrictions, for four-bedded wards are sometimes used for ten or more patients, inviting all the evils which attend overcrowding. It would appear that the one absorbing motive of the medical officer of health is to secure the admission of cases into the local hospital regardless of the consequences, and this is especially the case if he does not happen to be the visiting physician to the hospital in question; the results of such a line of conduct are not only prejudicial to the nursing staff but detrimental to the welfare of the patients. The necessity of removing to the hospital cases, especially those of diphtheria and enteric fever, in their later stages does not appear to be sufficiently realised and enforced, the importance of isolation being much underrated, thus entailing risk to the patients and causing a rise in the death-rate. The responsibility for this does not rest so much with the medical attendant as with the medical officer of health, who is sometimes slow to adopt such measures as shall insure immediate removal on notification of the case.

The modern sanitary inspector is not unfrequently a young married man who, in order to minimise the risk of conveying infection to his family, entrusts the supervision and removal of patients' clothes, &c., to the hospital to one of his understudies, who in his turn perhaps hires a neighbour or odd man to assist him; whether any untoward results accrue from such a mode of procedure it is impossible to say, nevertheless it is not a fair policy to pursue in the interests of the public.

I am, Sir, yours faithfully,

EDWARD CARNELL, D.P.H., M.R.C.S. Eng.

March 28th, 1910.

THE INFECTIVENESS OF SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—Only those who have seen several epidemics of scarlet fever can appreciate Professor Saundby's letter on the infectiveness of scarlet fever in your last issue. I believe it was Graves, the great Dublin physician, who first drew attention to the variations in virulence of different epidemics of scarlet fever, and I think he is quoted by Trousseau, who highly admired his work. There is no doubt about the truth of the observation, and it will easily be remembered by an occurrence at a provincial medical meeting some years ago now. A young practitioner thought he had discovered a specific (in some mercurial preparation) for all cases of this disease; but his treatment, apparently so convincing, never survived the criticism of an old doctor who was also present, and who had seen many epidemics, when he said: "There are some epidemics of scarlet fever which '*nowt*' will cure, and others which '*owt*' will cure, and our young friend has had to deal with the latter kind." Still, I am inclined to think that the serious results are less frequent, which may be attributed to the improved sanitation of houses, greater attention paid to the local treatment of the throat during the disease, and also the frequency of

operations for the relief or cure of naso-pharyngeal troubles in young children nowadays.

I am, Sir, yours faithfully,

Harrogate, March 26th, 1910. T. JOHNSTONE.

VARICOCELE AND THE PUBLIC SERVICES.

To the Editor of THE LANCET.

SIR,—Having initiated the discussion on this subject in your columns in 1905, I am gratified to see you return to the charge in a second leading article. So strongly do I feel this heartless, needless, and useless mutilation of youths who are keen to serve in the army that I consider it the bounden duty of the surgical profession to bring about a reform of the clause in the regulations recommending operation. I trust that all who may now discuss the subject will read carefully my letter of Sept. 23rd, 1905. One point bearing on the experience of other military surgeons than myself I then omitted to mention; it is this: I asked three of my colleagues employed in recruiting at St. George's Barracks whether they had ever treated any officer or soldier for varicocele during their service, and I received a prompt reply in the negative. Now, here were four of us army surgeons with an aggregate of 120 years' service in different parts of the world, and yet not one of us had ever seen any inefficiency from varicocele. Is it, then, that varicocele is more prevalent now than it was in years gone by? If so, why is it? What is the per mille, or per ten mille, rate of the condition treated in civil hospitals? When I invited naval surgeons (who reject for varicocele in any form outright) to give us their experience few, if any, responded. I know not why, for a military medical officer is not prohibited from expressing a professional opinion on a disputed question. If there is grave risk with one in a thousand of these operations the War Office is not justified in recommending an operation.

The whole business is, in my opinion, a phantasm which I trust you will succeed in laying, and I further trust that you may receive aid from the Director-General of the Army Medical Staff in doing so. It has often occurred to me that I should like now to carry out a thorough examination of all the candidates who have had operations performed to discover what have been the results. Those I examined years ago did not assure me of success.

I am, Sir, yours faithfully,

FRANK HOWARD,
Colonel (retired), Army Medical Staff.

Cromwell Mansions, S.W., March 26th, 1910.

To the Editor of THE LANCET.

SIR,—On reading the article in THE LANCET, "Varicocele and the Public Services," I was reminded of a conversation I had with the late Sir James Paget some years ago on the question of operation for varicocele, when he informed me that Nelaton had told him that he had never seen a case of varicocele amongst all the soldiers that had passed through his hands at the Hôtel des Invalides in Paris, which must have been a very considerable number. From this he argued that varicocele has a tendency to disappear in later life. Should this be borne out by other observers, is it not a strong argument in favour of not making the operation compulsory before entering the public services?

I am, Sir, yours faithfully,

York, March 26th, 1910. W. H. JALLAND.

ACCIDENT CLAIMS AS AFFECTING THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—I shall be obliged if you will allow me to place the following facts and opinions before your readers as I feel sure that you will agree with me that the subject is most important, and although my opinions may be distasteful to a very small minority I am certain that they will be endorsed by the great majority of the profession. Having during the last 15 years devoted my time almost entirely to the examination of cases of personal injury caused, or supposed to be caused, by accident, during which time I have examined over 11,000 cases, it will perhaps be granted that I must have had a large experience of the attitude shown by the profession when dealing with such cases.

Firstly, I wish to say that in that experience I have found medical men, with the exception of a very small percentage, absolutely straightforward and anxious to do their duty impartially, having due regard to the interests of their patients who were actually suffering from the effects of accident and whose claims were *bonâ fide*, and also having the same due regard to the interests of these claimed upon, if the disability was non-existent or greatly exaggerated. I am greatly pleased to bear witness to the upright attitude which has been in an enormous number of cases assumed by medical men who had immense inducements offered to them to diverge in some small degree from absolute honesty and truth. Many members of the profession will bear me out in voicing the difficulties continually encountered in dealing with claims.

1. Medical men in good practice have frequently rich patients—patients who are either valuable in themselves or by their connexions, patients whom they have always before thought to be eminently respectable and trustworthy, who, when face to face with an accident claim, seem to lose every particle of moral fibre. It may be that such a patient has an accident or an alleged accident, and some time after a doctor has been in attendance, during which time he has seen little or no objective sign of injury, it is suddenly sprung upon him that there is an accident claim pending, of which he has heard nothing and which at the last moment throws light on an obscure and bewildering case. A medical man called in to a patient is obliged to treat the aches and pains that are complained of, for if there are no objective signs he cannot discredit his patient and refuse to attend him; in fact, he would be very wrong in so doing, as there are many traumatisms of which there is no visible objective sign; but when he has treated his patient for some time with purely negative results as to the cause of the trouble complained of, what is he to do when suddenly asked to sign an accident claim certificate? He has to think, and the difficulties that confront him are immense, and if he is a struggling practitioner a source of insidious temptation.

2. Medical men associated with clubs are continually attacked by clever malingerers, so clever that they sometimes deceive the very elect; these make various statements when there is no sign of injury, and the difficulty arises as to how far the patient is to be believed, especially as if he is not believed, the medical man will be most likely threatened with the loss of the club, even if the claim is palpably a bogus one. Medical men are, however, in this matter not on a pinnacle by themselves, as I find that solicitors to societies and legal assistance clubs have sometimes the greatest pressure brought to bear on them with similar threats.

3. Medical men acting for a certain class of employer and the smaller fry of insurance offices are frequently in a very difficult position, as they are sent to examine workmen, being told beforehand to expect an absolute malingerer, for there is a certain order of lay mind to which the slightest particle of truth is unknown and to whom it is most distasteful. I say without fear that the profession has, under this stress, in the past nobly done its duty and has only been degraded by a few black sheep who must be present in every large flock.

I wish to call, however, the attention of the readers of THE LANCET to a development which has recently occurred, and which should, in my opinion, be nipped in the bud. Under the Workmen's Compensation Act, 1906, which largely extended the benefits of the previous Act, I regret to say that certain members of the profession, and some few even with high qualifications, are not acting up to the traditions of the profession and are bringing discredit on it, not only with employers and insurance offices, but with workmen and their organisations. As a Medical Referee appointed by the Home Secretary I have had many cases referred to me for report, in which the evidence shows that two medical men on each side have sworn diametrically opposite to one another on questions not of opinion but of perfectly apparent fact. I fully understand that medicine is not an exact science and there must be differences of opinion between the most high-minded men as to the condition or prognosis of certain cases, but I am reluctantly obliged to come to the conclusion that there are a few medical men now in London who will do everything possible for the person or persons by whom they

are employed; they make themselves partisans, and it is impossible for a partisan, however he may wish to be truthful, to be an absolutely impartial witness. I feel very strongly that a protest should be raised against partisanship in the witness-box, for the profession as a whole is being discredited by a fractional minority, who are, however, continually appearing in court as medical witnesses in accident cases.

Every member of the medical profession should understand fully that he is in a judicial position when asked to examine a case of personal injury alleged to be by accident, and therefore should be absolutely impartial. If acting for employers or insurance offices, the report should show the absolute facts, so that those interested may see exactly how they stand with regard to the claim. If acting for workmen, the workman should have absolute confidence that if there is a *bonâ-fide* disability he will be supported, but he should also know that in no case will he be supported when making a bogus or exaggerated claim.

I feel sure that the profession as a whole will be at one with me in this matter, and that even the fractional minority will agree that perpetually appearing in court on one side or the other, with palpable signs of partisanship, will not only weaken the profession but discount their own evidence in future cases, for county court judges are extremely acute men of the world. I am convinced that the great majority of workmen are honest in spite of great temptations, and it is in the interest of the mass of the workmen that it should be on the one side impossible for a *bonâ-fide* workman not to have his half wages under the Workmen's Compensation Act promptly paid to him, and on the other side that it should be equally impossible for a workman to succeed when making a fraudulent or exaggerated claim on an employer.

The Act as originally drafted made it possible for either employer or workman, without any expensive procedure, to ask for a reference to a Medical Referee appointed by the Home Secretary, and the Medical Referee would have before him the reports of the medical examiners employed on behalf of both employer and workman. Now that the judges are referring so many cases to Medical Referees after trial and the heavy expenses entailed by it, I think the matter should be reconsidered by all parties. On the one hand, employers are obliged to employ counsel and incur large costs, which it is impossible to recover even if they win. On the other hand, the present rule has been disastrous to many *bonâ-fide* workmen who have had serious or permanent disability, since it is impossible for them to obtain justice if they are not paid their half wages, or have them arbitrarily stopped before recovery has taken place, except by getting a solicitor to place their case before a judge, with counsel and medical witnesses, and probably having to face the wealth and experience of a great insurance company. In considering the balance of loss to either employers or workmen I think that workmen are the greater losers, and that it would be greatly in their interest if either employer or workman could ask for a reference instead of, as now, it being necessary for both to agree to a reference. In my experience I have seen many requests for a reference refused because one side or other thinks the side asking for a reference will win. As the law stands many workmen get nothing; others only get an award after great trouble and anxiety. Employers or insurance companies lose enormously, as the law costs incurred are frequently larger in amount than the claim.

Injured workmen frequently have not the wherewithal to pay for medical attendance; in other cases medical men find their treatment of a case handicapped by the want of proper nursing, food, or expensive appliances which are really necessary to effect a speedy recovery and a return to work. Patients, even when discharged from hospitals, often live at a distance and are unable to attend for the massage, physical exercise, or electrical treatment which it is impossible to obtain in the outlying suburbs. It may be quite an Utopian idea, but I am sure it would pay the insurance offices to look after their injured workmen and to combine to provide facilities in the suburbs for the proper treatment of the men, under the supervision of their ordinary medical attendants. That some scheme of this kind will have to be started sooner or later I am certain, unless the premium rates of insurance are raised and, in fact, made almost prohibitive. Many hundreds of claims in my own knowledge would have been cut down to half if it had been possible for the medical attendant to get his advice carried out.—I am, Sir, yours faithfully,

ALBERT BENTHALL, F.R.C.P. Edin.

South Hampstead, N.W., March 15th, 1910.

EXTRACTION OF CATARACT IN THE CAPSULE.

To the Editor of THE LANCET.

SIR,—I observe in your review of Ophthalmology for 1909 in THE LANCET of Dec. 25th last, that the writer thereof says that I have recently even ridiculed my opponents. The remarks I presume refer to 1909. The last paper I published was in THE LANCET of August 15th, 1908, and the only thing published since were my remarks in response to criticism at the Bombay Medical Congress of February, 1909. I think it would only be fair for your reviewer to quote or refer to what he terms "ridicule." I have little doubt that any fair-minded man will not include anything in the above-noted papers as "ridicule." In the matter of extraction of cataract in the capsule I stood out single-handed and alone against the world for years, and I have little doubt but that a generation hence I will have been considered to have been entertained to as much opposition, scientific and unscientific, as any man in modern times who has ventured to show that time-honoured doctrines were wrong, that the facts on which time-honoured theories appeared to be based did not exist. Your reviewer says it remains to be explained why I and the men whom I have trained get better results than our opponents. This is very easy to explain. Extraction of cataract in the capsule is probably the most highly technical operation in surgery. Those who do not get as good results as we do, do not know how to perform the operation, and their assistants probably do not know how to assist them, the part played by the assistant being almost as important as the part played by the operator.

I am, Sir, yours faithfully,

Amritsur, Punjab. HENRY SMITH, Major I.M.S.

*** There was no intention on our part to imply that Major Henry Smith had been discourteous to those who differ from him.—ED. L.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Industrial Employment of Married Women.

Dr. J. Robertson, the medical officer of health, has prepared an important report on the employment of married women and infantile mortality in Birmingham. He chose for thorough investigation two of the poorest wards of the city, covering an area of 289 acres and having an estimated population of 41,884 persons. The mean death-rate for the five years ending December, 1908, was 22·5 per 1000 and 20·3 per 1000 respectively. The infant mortality was 166 and 211 per 1000 births in 1909, while the infant mortality throughout the whole city was 135, a decrease of 17 per cent. as compared with the previous five years. The two wards chosen are occupied by works and small dwelling-houses. The population density was 152·7 and 162·1 persons per acre, the average for the city as a whole being 44·2. The houses are from 60 to 100 years old. In 1896 inquiry showed that 63 per cent. of the houses were of the back-to-back type. A considerable proportion are situated in common courtyards. The most important industry is metal working, and the number of chimneys emitting smoke is considerable, so that the people live under gloomy conditions, due to the soot and absence of trees and open spaces. In 1212 homes visited regularly during 1908 no fewer than 45 per cent. had total incomes from all sources of less than 20*s.* per week, while 20 per cent. had less than 10*s.* per week. Some idea of the extent of the employment of married women is given by the statement that of the women who bore children during 1908 no less than 54 per cent. went out to work. "I do not think," says Dr. Robertson, "it is far wrong to assert that in this area, having a population of over 40,000 persons, at least 50 per cent. of all the married women go to work before or after their infants are born. In 15 per cent. of the homes

visited the woman's husband was out of work at the time of the visit." In the two wards there were 1503 children born alive during 1908 and 39 stillbirths. The birth-rate was, therefore, a high one—viz., 35·8 per 1000. 1212 mothers were included in the inquiry; of these 601 were industrially employed during pregnancy—i.e., 49·6 per cent. Those employed after the birth of their children and while the child was still alive were 31·5 per cent. The mortality among the infants born in 1908 of all mothers employed either before or after childbirth was at the rate of 190 per 1000, while among those not industrially employed it was 207 per 1000. In this district, therefore, where half the mothers go to work, the mortality is rather less among the working mothers than among those who are not employed. Of 100 babies born prior to 1908 to those industrially employed 25 died during the first year, while for those not employed the figure was 20. The average age of the employed mothers was 28, of the unemployed 30. Of the 1212 mothers, 1157 were living with their husbands, 24 were living apart, 7 were widows, and 24 were single; 20 of the 24 women living apart from their husbands were employed, and 22 of the single women. In every instance inquiry was made as to why the mothers went to work and the replies were: sole or main source of income, 81; to supplement small income, 556; preference for industrial work, 20. The work done brought in on an average 8*s.* 5*d.* per week. The total earnings of the household apart from the mother's wages in the cases were as follows: in homes where the mother did not go to work, 23*s.* 1*d.*; in homes where the mother did go to work, 20*s.* 1*d.* No less than 140 of the women continued to work up to within a week of their confinement, while 205 stopped work over three months before. 57 women returned to work at or before four weeks after confinement. 75 per cent. of the mothers who were not employed and whose babies lived for 12 months fed their children with the breast, while only 27 per cent. of those employed did so. The babies so fed were heavier and better nourished than the others. Poverty, however, had a considerable influence on the infant, whether breast-fed or not, and Dr. Robertson again indicates the need for some institution capable of supplying food to hungry expectant mothers and to those who are nursing their children and are badly nourished. "These mothers live more exacting and self-denying lives than probably any other group in the community. What food comes into the house is given to the children or the husband, while they themselves go on from day to day in a state of semi-starvation." In Birmingham the type of industrial employment in vogue does not appreciably influence the health of the mother or her infant, when the standard of comparison is that of women in equally poor circumstances who are not employed industrially, but it is not maintained that such employment is free from all harmful influence. The mere fact that it prevents breast-feeding is, in Dr. Robertson's opinion, a reason for some State interference. In this Birmingham area, however, it seems to be a question whether the additional poverty which would be occasioned by preventing mothers from working, say, six months after a birth would not be the greater of two evils.

Hospital Saturday Fund.

The report for the year 1909 states that the total receipts amounted to £19,689. This was £943 below the total for the previous year. The number of contributing firms was 2171. £10,000 were voted last year for distribution among the medical institutions of the city. The total number of patients received at the three convalescent homes maintained by the fund was 2986. Since the first home was opened 18 years ago 345,666 patients have been received. The treatment of consumptive patients at special hospitals continues to be a very important part of the work, but the provision is altogether inadequate. Although a greater number of applications were received fewer patients were sent away, owing to the limited accommodation at Eversfield Hospital, St. Leonards, and the closing of the sanatorium at Weston-super-Mare to consumptives. The committee reports that the scheme for providing a consumptive sanatorium of its own as a memorial for the late Sir William Cook has made considerable progress. Already a site has been found not far from Birmingham which is considered in every way to be eligible and it can be procured on reasonable terms. A special fund for this purpose has been opened.

General Hospital.

At the annual meeting of the governors held recently an earnest appeal for subscriptions was made. The subscription list has been falling off for the last nine years, and now only amounts to £7163. This was attributed partly to the liberality with which in-patients were accepted without tickets, subscribers having stated that hospital tickets were not so much inquired for, and they proposed to reduce their subscriptions. In future tickets will be required to a larger extent in non-urgent cases. During last year £18,306 were spent upon in-patients, from whom no tickets were received. At the same time income from investments was also diminishing. The total expenditure for the year was £27,122, and there was an adverse balance of £11,427. The cost per occupied bed was £80 16*s.* A serious financial fact last year was that the accounts of the triennial musical festival, the proceeds of which go to the hospital, showed an adverse balance (apart from donations) of £1172. With the exception of 1888, when there was an adverse balance of £477, the working of the festival has hitherto resulted in a substantial surplus.

Ear and Throat Hospital.

The annual report states that the total ordinary income for the year was £2780 14*s.* 2*d.* and the ordinary expenditure £3174 14*s.* 1*d.*, leaving an adverse balance of £462 1*s.* 6*d.* The number of in-patients treated was 1686 and of out-patients 8267.

Lying-in Charity.

The annual report shows that the work has increased in all directions. In the district 1680 cases had been attended, the largest number since the foundation of the charity. 379 cases were admitted to hospital and 55 pupils were trained. No case was fatal from septic infection. The income was £3808 and expenditure exceeded this by £705.

Skin and Urinary Hospital.

There were 167 in-patients and 7071 new out-patients last year. 185 patients with 3612 attendances were treated in the X ray and Finsen light department. The total expenditure was £3017, an excess over income of £351, the accumulated deficiencies being £1895. An appeal was made for increased subscriptions and donations. £1000 are required to complete the electrical department and a further £1000 to establish a radium institute.

School Hygiene.

The report of the medical superintendent (Dr. G. A. Auden) on the medical examination of school children during last year shows that 26,484 children were examined, making a total of 36,678 since inspection began. The following defects were found:—Vision, 6/12 or less (all causes), 2816; squints, 700; external eye defects (blepharitis, corneal opacities, ulcers, &c.), 472; ears (defective hearing, otorrhœa, &c.), 1235; tonsils and adenoids, 1470; heart affections (congenital and acquired), 188; lungs (symptoms suspicious of phthisis, chronic bronchitis, &c.), 81; phthisis, 50; paralysis of muscles of limbs, 87; deformities other than paralyses (kyphosis, genu valgum, &c.), 176; chorea, 25; speech defects, 96; epilepsy, 42; skin, (*a*) ringworm, 421; (*b*) other skin affections, 259; hernia, 84. The number of parents present at the examinations showed a satisfactory increase. Dr. C. E. O'Connor presented a separate report on the inspection of children attending special schools. The number among the physically defective who were so through tuberculous disease was very large, being more than half.

March 29th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

School Children's Diseases.

Mr. S. Hosegood, the medical officer of health to the Swinton and Pendlebury district council, calls attention to the increased prevalence of scarlet fever, especially in two of the wards. He attributes this increase in part to "parental indifference," which often leads to delay in dealing promptly with the first case occurring in a neighbourhood. In these wards an unnoticed case has frequently "been the focus for a more or less wide distribution of the disease." He gives expression to an opinion on the part played by schools in the spread of scarlet fever, which is not, at any rate, universally held. His observations as schools medical officer did not lead him to the conclusion that the spread of

disease was appreciably affected by school attendance, but was rather due to home influences and surroundings. He drew attention to a matter of great moment and one difficult to deal with—namely, to the absence of care on the part of parents in properly safeguarding the patient from contact with others. Without this care it was manifestly impossible for an efficient system of oversight and supervision to have adequate effect." There is evidently room here for much missionary work among our careless and ignorant population—ignorant, that is, not so much of the "three R's" as of many matters relating to the comfort and well-being of their families.

Gift of a Sanatorium to Bolton.

Mr. Thomas Wilkinson, J.P., recently gave a residence standing in its own grounds at Sharples, Bolton, to his native town. The value of the gift, including endowment, is estimated at about £100,000. Mr. Wilkinson was well known in his younger days as an athlete, and during his business career was a successful blockade runner at the time of the American war between North and South. Though now advanced in years and in somewhat feeble health he took part in the inauguration ceremony the other day. He is shortly to be made one of Bolton's freemen. He has also given an adjoining residence and the land about it, and as the whole of the buildings on these sites are admirably fitted for the purposes of a sanatorium, Bolton must be congratulated on the fact that its phthisical patients within the Bolton union area can now be treated in a thoroughly well-equipped sanatorium in pleasant surroundings.

Salford Hospital Dispute Ended.

It may be remembered that some time ago there was a dispute with the Salford guardians as to the medical superintendence of Hope Hospital, in which the British Medical Association disapproved of the arrangements, and the hospital was practically boycotted so far as applications for medical positions were concerned. As the result of negotiations, however, the medical administration is to be remodelled. The medical superintendent is to take complete control of the institution. The salary is to be £350 a year, increased by annual increments of £50 up to £500. There is a liberal allowance for housing.

Flannelette and Fireguards.

Flannelette continues to levy toll on the lives of the children. Last week a little girl named Almond, 4 years of age, was burnt to death in Hulme. This case was remarkable for a fraudulent attempt to show that the "accident" took place in spite of a fireguard being in front of the fire. The grandmother, it seems, after the occurrence borrowed a guard and tried persistently, as the coroner said, to pass off a neighbour's guard as the Almonds'. He said that she had tried deliberately to deceive the inspector who visited the house soon after the accident, and also his own officer a day later, and had tried to make a child tell a lie about it. He thought a prosecution ought to arise from the case. The guard was borrowed from a woman who had little children of her own, so another accident might have easily happened. No doubt the well-known views of the coroner had suggested the fraud. A case has just been described to me in which a little lad aged 8 years has died from his flannelette nightgown catching fire.

March 29th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Opening of the New Dental Hospital.

THE handsome and well-equipped building at the junction of Pembroke-place and Boundary-place, which has been erected during the last 14 months at a cost of £10,000, and is intended to supersede as a dental hospital the old institution in Mount Pleasant, was opened on March 19th by the Earl of Derby, in the presence of a large and representative gathering. Lord Derby arrived at the building at half-past four, and formally opened the hospital by the east, or main, door, being presented with a handsome gold key as a souvenir of the occasion. Lord Derby and the other visitors then inspected the building, a notable feature of which are spacious and exceptionally well-lighted apartments, and afterwards the entire company assembled in the large upper room, Lord Derby taking the chair. Amongst those present were the Lord Mayor and the Lady Mayoress, Sir Charles and Lady Petrie, Mr. L. S. Cohen (the chairman of the hospital committee) and Mrs. Cohen, Professor A. M. Paterson (honorary treasurer), Professor L. R. Wilberforce, Vice-Chancellor A. W. W. Dale, and a large number of members of the medical and dental professions. The Lord Mayor, in opening the proceedings, remarked that at the present time, thanks to the progress of medical science, people had made up their minds that the care of teeth was of great importance for the health of the body, and dental hospitals were now recognised as an absolute necessity for the welfare of the community. There was one feature of the hospital which was to be commended; he referred to the arrangement whereby those who used the hospital were able to contribute towards its support according to their means. He hoped this system would long continue. Mr. Cohen proposed a vote of thanks to Lord Derby for having opened the hospital. Referring to the building fund, Mr. Cohen thanked in particular Mrs. and Miss Holt, Sir William Hartley, and Sir John Brunner for their handsome subscriptions, as also the dental staff, who had subscribed £1000 for the equipment of the hospital. They required £10,000, and now they were only £1500 short. The committee had bought the land from the corporation, who had commuted a ground rent of £900. A large portion of the land had not yet been built upon, and it was proposed to utilise it as a lawn tennis ground or as a croquet lawn in connexion with the University. Liverpool had reason to be proud of its new dental hospital, which was accessible from all parts of the city. Professor Paterson moved a vote of thanks to the subscribers to the building fund, and said that it was the best and cheapest dental hospital ever built. Mr. Cohen had spared no effort to make the hospital a success, and he was the first to come forward with a promise of 10 per cent. (£1000) on the amount required. He also paid a tribute to the great assistance the committee had received from Mr. W. H. Gilmour (the warden of the hospital). Mr. Gilmour seconded the vote of thanks to the subscribers in an appropriate speech. Mr. Mansell (the chairman of the staff) presented to Mr. Cohen a replica of the key given to Lord Derby, and expressed the hope that he would long be spared to continue his services as chairman of the hospital. Vice-Chancellor Dale proposed a vote of thanks to the Lord Mayor and Lady Mayoress, and eulogised the beneficent work of the hospital.

Hospital Sunday Fund.

The collections on behalf of the Hospital Sunday Fund for the year 1910 to date amount to £5493 4*s.* 5*d.* The corresponding collections for 1909 amounted to £5526 18*s.* 6*d.*, whilst the corresponding collections for 1906 amounted to £5567 15*s.* 9*d.* These amounts do not include donations. A further list will appear later.

Another Death from Anthrax in Liverpool.

The Liverpool coroner held an inquiry on March 21st touching the death of a woman, aged 41 years, who was employed by a firm of sack merchants as a bag-mender. On March 16th she was engaged mending some sacks which had contained bones. A small boil was observed on her neck, and she became ill. On the following day she was taken to the David Lewis Northern Hospital, and thence to Fazakerley Hospital, where she died the same day from anthrax. The bones were said to have come from Alexandria with a mixed cargo of hides, skins, and wool. Upon hearing the medical evidence the jury returned a verdict of "Death from anthrax."

March 25th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Installation of the Chancellor of the University.

THE Court of the University, on the nomination of the Council, has invited His Grace the Duke of Devonshire to follow the late Marquis of Ripon as Chancellor. The acceptance of the position by the Duke has caused the liveliest satisfaction in University circles, for everyone who remembers the association with the Yorkshire College of the late Lord Frederick Cavendish will regard as singularly appropriate the selection of a member of the same distinguished

family as head of the University. The installation will take place on June 11th.

Appointment of Lecturers in Practical Surgery and in Operative Surgery.

Consequent on the appointment of Mr. R. Lawford Knaggs to the professorship of surgery, a vacancy has been created in the lectureship on practical surgery. Mr. Walter Thompson has been appointed by the Council to this position. Mr. Thompson was the lecturer on operative surgery, and in this capacity he is succeeded by Mr. J. F. Dobson.

Closing of the Winter Term.

The second term at the medical school came to an end on March 23rd, and the third term will commence on April 25th. As on former occasions, dissection may be carried on during the vacation after Easter Tuesday.

Annual Meeting of the Leeds General Infirmary.

There was a large attendance at the annual meeting of the friends of the General Infirmary, which was held on March 16th. On these occasions the treasurer, Mr. Charles Lupton, is in the habit of taking the annual report and balance-sheets as read and making some careful comments on them. Mr. Lupton's comprehensive grasp of all that pertains to hospital finance and management tends to make all that he says worthy of careful note. Dealing with the work of the infirmary Mr. Lupton said that the increasing demand on the accommodation seemed to make the institution get smaller and smaller year by year, and he contemplated the necessity of an early appeal to the public for an increase in accommodation. As usual, the work had increased, for the number of in-patients was 220 over that of the former year and amounted to 7357, while the new out-patients numbered 48,351, an increase of about 6000. Though the infirmary had paid its way and invested some funds during the past year, Mr. Lupton showed that this excess of income over expenditure was due to causes which were accidental and which could not be relied upon to occur again. Of £44,000 received £19,000 represented legacies and special donations, and, indeed, the only source of income which has not lessened was that of the Workpeople's Hospital Fund, which in spite of bad trade had given the same handsome subscription of £5250 as in former years. On the other hand, the ordinary subscription list was back to where it was in 1892, and the congregational subscriptions to where they were in 1870. The total expenditure of the institution had increased by £1300. Among immediate requirements was the opening of a new ward with 28 beds, and the provision of two additional operating theatres. A sum of £7000 would be required to meet the cost of structural alterations, and from £3500 to £4000 to meet the increased cost of maintenance. Under ordinary circumstances the income was some £6000 less than the expenditure, and that deficiency, though happily more than met this year, had to be covered from the precarious source of special legacies and donations. Mr. Lupton also pointed out that the infirmary was opened in 1868, and it was, like all buildings 40 years old, requiring the annual expenditure of large sums in maintenance and repairs.

March 29th.

WALES.

(FROM OUR OWN CORRESPONDENTS.)

The Extension of Cardiff.

To those acquainted with the rapid increase during the past 20 years, not only of Cardiff but also of the districts immediately adjoining, the enlargement of the boundaries of the city would appear to be but a natural development and quite in accordance with the spirit of the times. A few years ago an attempt was made to include the adjoining urban district of Penarth within the city area, but the proposal was unsuccessful owing to the opposition of the Penarth residents, who feared that the rates of the urban district would be raised to those which prevail in Cardiff. A committee of the corporation is now considering the details of a scheme, to be embodied in a Parliamentary Bill, for the inclusion in Cardiff city of portions of the rural district of Llandaff and Dinas Powis. The present proposals are that Llandaff, Whitchurch, and Llanishen should be included in the enlarged area. The newly erected asylum, or as it is officially styled, Mental Hospital, which has been erected by the Cardiff corporation, is situated in Whitchurch, and the Cardiff waterworks, including a reservoir of 300,000,000 gallons capacity, which served the town before the Brecknockshire Beacons supply was obtained, are in Llanishen. The tendency of the present day is to gather adjoining populous districts under one administrative control, and with the examples of the federated pottery towns and the proposed creation of a Greater Birmingham it is a little surprising that the Cardiff people have not considered the more ambitious scheme of making the area of the Cardiff union co-terminous with that of the city. The union had a population in 1891 of 173,000 and in 1901 of 229,000, and includes, in addition to Cardiff, the rural district of Llandaff and Dinas Powis and the urban districts of Barry and Penarth. The aggregate population at the present time is well over 300,000. As already stated, some of the Cardiff enterprises are situated in the Llandaff and Dinas Powis rural district, and the Cardiff water is supplied to Penarth, while negotiations are proceeding for its supply to Barry. The large outfall sewer which is now being constructed for the discharge of the Cardiff sewage into the Bristol Channel beyond Lavernock point passes through the Penarth urban district and could be utilised to receive the Penarth drainage to the advantage of that town, the sewage of which is now discharged into the Channel near to Penarth Head and in the proximity of the promenade. For Customs purposes Cardiff, Penarth, and Barry are one port, and the Cardiff port sanitary authority includes within its area of administration Cardiff and Penarth, Barry being a separate port sanitary authority. There thus appear to be many reasons why the creation of a Greater Cardiff should be possible and to the advantage of the districts concerned.

Pauperism in Wales.

At the last meeting of the Hay board of guardians Mr. Hugh Williams, the Poor-law inspector of the Local Government Board for North and South Wales and Monmouthshire, referred to the recently issued Order of the Board relating to the boarding out (within unions) of children. He stated that of the 2500 children in his district 900 were in the several workhouses and belonged chiefly to people who had been described as the "ins and outs." Nearly 1000 were boarded out with foster parents and were for the most part well cared for, some 500 were in certified schools, while about 250 were in service under the supervision of the guardians, who saw that they were paid and properly treated. There were in the workhouses of Wales and Monmouthshire about 10,500 inmates, but barely 100 of this number were capable of doing a good day's work. It is disheartening to learn from Mr. Williams that the rate of pauperism is higher in Wales than in other parts of Great Britain, notwithstanding the fact that it includes large and prosperous industrial centres. He expressed the opinion that the increase in pauperism was a problem which boards of guardians must set themselves to solve, and urged that, although it appeared cheaper for the moment to give out-relief, the offer of the workhouse should be made more frequently, such an offer being no hardship to questionable people while it acted beneficially upon the community as a whole.

Obituary: David Davies, F.R.C.S. Eng., of Aberdare.

Through the death on March 17th of Mr. David Davies, F.R.C.S. Eng., L.R.C.P. Edin., L.S.A., the medical profession of the South Wales colliery districts has lost its oldest member. Mr. Davies was born in 1821, and after serving an apprenticeship with the late Dr. Redwood of Rhymney studied at Guy's Hospital. In 1843 he took the M.R.C.S. and two years later settled in Aberdare where he has lived ever since, retiring from practice only three years ago. Aberdare, which has now a population approaching 50,000, was inhabited 65 years ago by about 7000 persons, and its colliery developments have been very great. In 1863 Mr. Davies was appointed medical officer of health of Aberdare, and held the position for 44 years, during which period sewerage and water-supply schemes have been carried out and the general sanitary administration of the town has been developed. As surgeon to the collieries which sprang up during his lifetime, Mr. Davies had considerable local reputation, and he lived long enough to see the enormous improvements which were made

in surgical practice owing to the introduction of aseptic methods. He was on the commission of the peace for Glamorgan, and took a considerable amount of interest in the public life of Aberdare. He joined the Volunteers in 1859 and retained his commission as honorary surgeon until the formation of the Territorial Force.

March 29th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Edinburgh Corporation and Consumption.

Two recommendations of the public health committee of Edinburgh were brought before a meeting of the corporation of the city on March 22nd. One recommendation was that a contribution of £450 per annum should be made to the Dispensary of the Royal Victoria Hospital for Consumption, which should be used for extending the work of the Dispensary, while the information which had been accumulated by the Dispensary officials should be placed at the disposal of the medical officer of health. The second recommendation was that a grant of £500 per annum should be made to the hospital, in return for which ten beds should be set apart in the hospital for early cases of phthisis to be selected by the medical officer of health. There was a good deal of discussion on these recommendations and there was a considerable minority opposed to the scheme, including the late convener of the committee, Dr. Cullen. The recommendations were, however, carried by 28 votes to 12.

New Librarian for the University of Edinburgh.

At a meeting of the Edinburgh University Court Mr. Frank C. Nicholson, M.A., was appointed chief librarian to the University. Mr. Nicholson was a distinguished student at Christ Church, Cambridge, taking honours in the classical tripos, and special distinction in German in the mediæval and modern languages tripos. He studied in Germany. He held the post of assistant librarian to the University of Aberdeen, and in 1903 was appointed acting librarian to the Royal College of Physicians of Edinburgh. He is well qualified for the post, and many of the readers of THE LANCET will be interested to know that he is a son of the late Professor Alleyn Nicholson of the University of Aberdeen.

Proposed Hospital at Insch.

The late Miss Margaret Smith, Alvah Cottage, Insch, by her will leaves £50 towards a fund for the erection of a hospital at Insch for the relief of sick and ailing persons. This fund is to go along with a legacy of £50 bequeathed by her brother, the late Mr. James Smith of Insch. Miss Smith directs that the sum of £50 shall be retained by her trustees, and the interest thereof accumulated by them so long as they can legally do so, until sufficient funds are obtained to erect a hospital as mentioned.

Sidlaw Sanatorium.

The governors of Dundee Royal Infirmary at their last meeting gave formal approval of the draft agreement providing for the transference of the Sidlaw Sanatorium. The chairman expressed the gratitude of the governors to Mr. Caird for his donations. He then outlined the course of negotiations between parties and remarked that an agreement was come to, approved by Mr. Caird, whereby not only were 20 beds set aside for tuberculous children and seven endowed beds retained for adult phthisical patients, irrespective of sex, but accommodation was also reserved for other sufferers from pulmonary complaints, and thus the original purpose of the institution seemed reasonably fulfilled.

Medical Inspection of Schools in Aberdeen and the North.

The Secondary Education Committee for Aberdeenshire has now received replies from most of the boards of the county on its proposed scheme for medical inspection. In all 86 boards have decided to adopt the committee's scheme, four have as yet intimated no decision, and one, that of the Rayne board, has signified disapproval. By the committee's scheme it is proposed to appoint a medical officer at a salary of £300 (exclusive of travelling expenses), which is to rise by £25 per annum to £400. It is also proposed to appoint an assistant or assistants, the salary proposed being £200, to rise annually by £25 to £300.—A meeting of Caithness Secondary Education Committee was held in Wick recently. The committee had before it a report from the bursary committee as to the medical inspection of school children, in which it was estimated that the cost of the scheme for the county would be £500, one-half of which had to be paid by the county committee. It was decided that, first, by recommending the scheme of grants to school boards and reducing the grants by 20 per cent. a saving of £240 could be made; and, second, by dropping out of future budgets of the committee the sum set aside to make grants to teachers attending vacation classes a further saving of £60 would be effected, and this would meet the cost to the extent payable by the committee for the medical inspection. It was considered that these were the only two modes of carrying out the medical inspection: by having inspection for the county alone or by coöperating with Sutherland. The committee appointed a subcommittee of three to meet with the Sutherland education committee on the subject.

Presentation Portrait to Professor A. Ogston.

The committee in charge of the presentation portrait of Professor Alexander Ogston requests intending contributors to forward their subscriptions at an early date to the honorary secretary, Dr. J. Mackenzie Booth, 1, Carden-place, Aberdeen.

Obituary.

Mr. Alexander Forbes Chisholm Clark, M.B., C.M. Aberd., died at his residence in Dundee on March 15th from an attack of pleurisy. Dr. Clark was 44 years of age, a son of Mr. William Clark, and a brother of Dr. W. H. Clark, Woodside, Aberdeen. After a brilliant student career he graduated M.B., C.M., Marischal College, before he was 21 years old. He practised at New Deer and Old Deer, and was afterwards assistant in the Melrose District Asylum for two or three years. He then took up practice in Dundee, where he has been for 20 years. He was of a gentle, retiring disposition, and was held in high esteem. He is survived by a widow and two young daughters.—The death took place on March 26th at his residence, Parkburn House, Kilsyth, of Mr. John Fraser, M.D. Edin., L.R.C.S. Edin., who was a native of the parish of Dores, near Inverness. He graduated M.D. and L.R.C.S. in 1852. Three years after graduating he settled in Kilsyth, where he continued to practise until about a month before his death. From the time of the adoption of the Police Act in Kilsyth until his death he acted as burgh medical officer; he was one of the medical officers to the parish council, and held several appointments in connexion with friendly societies and works in the district. Dr. Fraser built up a very large practice in Kilsyth, and for many years required the services of two or three assistants.

March 29th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Convalescent Home, Stillorgan: Annual Meeting of Governors and Subscribers.

AT the recent annual general meeting of the governors and subscribers of the Convalescent Home, Stillorgan, the report of the committee of management stated that 1145 patients had been admitted to the institution during the year 1909. In the course of his address to the meeting the chairman stated that during the South African war several soldiers had been admitted to the institution, and with highly beneficial results. In 1862 the number of patients admitted was 57 only; in 1882 it was 792; and in 1908 it had increased to 1262. Mr. A. J. Horne, President of the Royal College of Physicians of Ireland, in proposing the adoption of the report, pointed out to the audience that the home existed for the purpose of supplying fresh air, rest, and wholesome food for the sick poor of Dublin and the neighbouring counties. The cost per diem of each inmate was 10¾*d.*

Kingstown and the Health Resorts and Watering-places Act.

As I have on a former occasion pointed out, there were several Irish mineral and thermal springs which over a century and half ago quite rivalled in the public eye the fame and fashion of Bath, and stood far higher in medical and scientific estimation than did those of Buxton

and Harrogate at that time. They gradually lost their celebrity and popularity when the "union" came to centralise Irish fashion in London. Now that the Health Resorts and Watering-places Act of last year has given a new chance to our Irish resorts, the corresponding public bodies have special opportunities, and some of these are already paying active attention to the provisions of Mr. MacVeagh's useful measure. It was proposed at a recent meeting of the Kingstown urban council that a rate should be struck for the purposes mentioned in the Act, and a levy of ½*d.* in the £ was unanimously agreed to. But the council rejected a recommendation that a sum of £100 should be contributed to the funds of the central council formed by a number of persons specially interested in the promotion of the objects of the Act. The majority preferred to formulate a general scheme and to procure afterwards the financial assistance of those councils that adopt the Act in carrying it out; the main argument in favour of this procedure is that it will prevent overlapping and consequent waste of resources.

Ulster Hospital for Children and Women.

At the annual meeting of the friends of this charity it was reported that 227 children, 74 women (gynæcological), and 6 women (maternity) were admitted into the wards, while in the extern department there were 2260 children (including 466 eye cases) and 612 gynæcological and 269 maternity cases. Financially, the income for the year was £1062 17*s.* 2*d.*, to which, when the sum of £151 3*s.* 6*d.*, carried forward as a balance from the previous year, was added, left a net income of £1224 0*s.* 8*d.* The expenditure was £1218 9*s.*, which left a balance of £5 11*s.* 8*d.* in hand. Towards the building fund for the new hospital £7550 have been subscribed.

Royal Victoria Hospital, Belfast.

The annual meeting of the governors of this hospital was held recently. The report stated that during 1909 there were 3068 cases admitted into the wards, which with 220 remaining from the previous year, makes a total of 3288 intern patients. Of these new cases, 1713 were surgical and 1365 were medical. In the extern department there were 29,850 new cases. The total number of new cases treated in the hospital (intern and extern) amounted to 32,891. Financially, the year started with a debit balance of £768 6*s.* 3*d.*, and closed with a balance of about £1000 more on the same side (£1787 10*s.* 8*d.*). The receipts from all sources amounted to £15,454 17*s.* 5*d.*, and the disbursements of all kinds came to £16,474 1*s.* 10*d.* Special attention was drawn to the want of more electrical equipment, the accommodation for which is at present too small, and also for a proper equipment for the vaccine-therapy work.

Seizure and Destruction of Lard.

A firm in Belfast was summoned by the Belfast corporation for having in their possession on Feb. 16th, 1910, for the purposes of trade, 74 barrels of lard to which a false trade description—to wit, "pure Continental lard"—was applied contrary to statute. Further, the firm was summoned on the ground that the lard was unwholesome. After hearing a great deal of evidence the magistrates decided that the article contained in the 74 barrels was unwholesome, and condemned it to be destroyed under the supervision of the medical officer of health. Further, they imposed a penalty of £20 on the other charge of applying a false trade description to the lard, and ordered the lard to be forfeited and destroyed.

March 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Meeting of the International Dental Federation.

THE annual meeting of the International Dental Federation was held at the Sorbonne, Paris, on March 25th. Professor Dastre, of the University of Paris, representing the Minister of Public Instruction, welcomed the members. The President, Mr. W. B. Paterson of London, delivered an address, in which the Federation's work, as the permanent bureau of international dental congresses, was outlined for the ensuing year. Among the various subjects indicated the following were set down for consideration: Public dental hygiene in connexion with Poor-law schools and the naval and military services, and pedagogics in the medical and dental schools from an international point of view. At the conclusion of the President's address speeches were made by the representatives of the various national dental societies and associations constituting the federation—viz., M. Francis Jean and Dr. C. Godon of Paris; Professor Jessen, Strassburg; Mr. J. H. Mummery, London; Dr. Williams, Adelaide, Australia; Dr. Florestan Aguilar, Madrid; M. Rosenthal, Brussels; Professor Kirk, Pennsylvania University; Ch. Vincenzo Guérini, Naples; Dr. Lenhardtsen, Stockholm; M. van der Hoeven, The Hague; and others. The appointment of committees on dental education and public dental hygiene was then made. During the meeting, which occupied two days, the award of the Miller International Memorial Prize was made for "eminent services to dentistry" to Dr. G. V. Black, of Chicago, U.S.A. In the absence of Dr. Schaeffer-Stuckert, of Frankfort, the report of the secretary-general was read by Dr. W. Guy, dean of the Edinburgh Dental School. The report, amongst other matters, referred to the question of the admission of dentists to International Medical Congresses, on which an official communication had been addressed to the Permanent Committee of the International Medical Congress now in session at The Hague as follows:—

> The Executive Council of the International Dental Federation has the honour to ask the Permanent Committee of the International Medical Congress to take into serious consideration its opinion on the question of the admittance of dentists to, or their exclusion from, future International Medical Congresses.
>
> If there is to be a Section of Stomatology or Dentistry, then, as the work of such a section will be to invite, to collate, and to discuss every advance in dental science and art, and, as the great proportion of such advance is made by dentists, it appears obvious that its work will necessarily be incomplete and its survey greatly limited, if it does not include dentists in its membership. The Council of the International Dental Federation would therefore urge upon the bureau of the International Medical Congress the wisdom and propriety of admitting dentists to a Dental Stomatological Section, if it is desired that the work of such a section be authoritative and complete.
>
> The Council of the International Dental Federation further submits the opinion that if the work of a so-called Stomatological Section is to be limited to the discussion of such matters only as are of medical and surgical interest and importance, as distinguished from dental, then it appears to it that a Stomatological Section is hardly necessary, as these matters can be better and more fully discussed in the Sections of Medicine and Surgery.
>
> In short, it considers that scientifically there is no justification for the existence of a Stomatological Section which excludes dentists, and hopes therefore that your committee will decide to strengthen and complete the Stomatological Section by admitting dentists.

On March 27th the ceremony of the unveiling of a memorial statue to Horace Wells, dentist, Hartford, Connecticut, discoverer of surgical anæsthesia by nitrous oxide gas in 1844, took place in the Place Etats Unis. The Minister of Public Works presided and was supported by several departmental heads of the municipality, Professor Dastre and other members of the Medical Faculty of Paris, the president of the British Dental Association, and members of the International Dental Federation and the American Dental Society of Europe. Various eulogistic speeches were delivered.

The Floods and the Health of Paris.

The normal average of deaths of the city of Paris during the first eight weeks of the year is 8850. In 1909 the total deaths during the same period amounted to 8919, and this year during the same period, when the flood was at its height, the deaths amounted to 7713. As regards typhoid fever, from Feb. 20th to 26th, 1910, there were 31 cases and 3 deaths among the 2,700,000 inhabitants. In the corresponding week of the year 1909 there were 36 cases and 6 deaths. Surely these figures are the most striking of all.

The International Congress of Physiotherapy.

This Congress was opened by the President of the Republic in the large amphitheatre of the Sorbonne on March 29th in the presence of a large official gathering. The Congress and associated exhibition will remain open until the end of the week.

March 29th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Hospitals and Well-to-do Patients.

THE "Consiglio degli Ordini dei Sanitari" (a body which has not a little in common with both the British Medical Association and the General Medical Council) has, after much animated discussion, decided on taking action in abatement of an abuse of long standing in hospital administration—to wit, the admission of well-to-do patients into the

wards originally destined for the poor or the less-favoured portion of the community. Representatives of the principal medical schools and seats of hospitals throughout the kingdom were present, Dr. Arturo Guzzoni, professor of obstetrics in the University of Messina, presiding. Evidence was brought before the council of the abuse in question—amounting in many cases to this: that not only are the ailing poor often "crowded out" by admissions well able to call in a duly qualified practitioner for treatment under their own roof, but that the interlopers even in hospital are able, thanks to their ample means, to pay for extra care on the part of the nursing *personnel*, so that the other inmates of the ward, unequal to the disbursement of "tips," have often to put up with perfunctory attendance and to suffer in consequence. Now, however, in the interests of the public and in those of the profession, we are likely to see the end of this abuse, the council having unanimously come to the following resolution:—

The "Consiglio Federale," in its endeavour to carry out the just conception of the "hospitalisation" of the greater number of patients and to protect the interests of the poor, resolves that the wards of public hospitals should no longer be open to patients whose private means are known to be ample, but that these latter should be accommodated, with a special *personnel* in attendance, in wards set apart for them exclusively, admission to which will be conceded on terms of payment proportioned to the clinical attention required, it being left free to the consultant or practitioner and the patient to settle between them the remuneration due.

The late Miss Isla Stewart.

May Florence be allowed to lay its little *immortelle* on the grave of this true "Sister of Mercy"? When just three years ago, at the instance of the governing body of St. Bartholomew's, she came to the City of Flowers for a brief respite from work she received not only from the profession but from the well-informed lay public, Italian as well as British, the welcome due to her honourable record in hospital administration and philanthropic endeavour. All who had the opportunity of meeting her were speedily impressed by her force of character, her centripetal insight into detail and her appreciation of the dominating factor, her catholic sympathies, her *sagacité de cœur*. No experience, particularly in her own *métier*, was thrown away upon her, and the hints and suggestions she made in her survey of the local hospitals were treasured all the more that there was some hope of her early return to the city when she might have witnessed how loyally and intelligently her advice had been utilised. But *dis aliter visum*. Florence was destined never to see her again, and now, to the regrets which follow her, can but add the expression of its own:—

Va-te-ne in pace, alma santa e bella.

March 26th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The New Hungarian Pharmacopœia.

THE new Pharmacopœia Hungarica will come into force on July 1st. It differs greatly from the preceding one, inasmuch as it comprises several new features with regard to the manufacture of drugs and the dispensing of prescriptions. A chapter has been added on the sterilisation of hypodermic solutions. The officially assigned maximum doses of certain drugs, especially of those which may act as poisons, are altered in several instances, generally in the direction of diminution. For instance, in the last Pharmacopœia the maximum dose of atropine was 0·002 gramme, and that of extract of belladonna was 0·05 gramme; whilst in the new one these doses are respectively 0·001 and 0·03 gramme. "Poisons" are denoted by the mark +, and "very active poisons" by the mark ++; these drugs are supplied by the pharmacists only on the production of a medical prescription. In the last Pharmacopœia 120 substances were marked + and 21 were marked ++, but in the new one 137 substances are marked + and 25 are marked ++. The substances marked + include bromine salts, antipyrine and its combinations, formaldehyde, guaiacolum carbonicum, kalium sulphoguaiacolicum, liquor hydrogenii hyperoxydati concentratissimus, and santonine. In order to protect Hungarian pharmaceutical chemists from the German and Austrian competition the new Pharmacopœia names certain proprietary preparations, when it is desired to include them, according to their chemical composition, without reference to their commercial designations. For instance, protargol is described not by that name but as argentum proteinicum; dionin as æthylmorphinum hydrochloricum; and bromidia as mistura chloralo-bromata. Of course, when it happens that the trade name has no scientific equivalent, it remains unchanged in the Pharmacopœia. New drugs to the number of 124 have been added, and 120 old ones have been omitted. Among the latter is agaricus chirurgicus, which has been used only as a hæmostatic after the application of leeches. Aqua calcis saccharata has also been omitted because it did not fulfil the expectation that it would act as an antidote against poisoning by carbolic acid. Hydrargyrum iodatum flavum has been omitted because nobody prescribes it. Guaiacolum is omitted, being replaced by the better preparation guaiacolum carbonicum, which is now made official. Petroleum rectificatum and cognac are also omitted because they can be obtained in every grocer's shop. Sal thermarum Carolinarum (Carlsbad salt) is omitted because the artificial Carlsbad salt is just as good and much cheaper. Stibium sulphuratum rubrum is obsolete and therefore omitted. Unguentum sabadillæ is omitted as it is of doubtful efficacy, and on account of its violent local action it may even prove dangerous. Vinum colchici is omitted because the Pharmacological Congress held in Brussels did not sanction the preparation of powerful drugs in the form of medicated wines. Vinum condurango is omitted because the fluid extract of condurango is much more efficacious. Vinum malagense is omitted because it is for the most part an artificial wine, and our Hungarian product, the Tokajer wine, is substituted for it. Acetate of zinc and valerianate of zinc are omitted as being obsolete. A few remarks may here be made regarding some of the new additions to the official materia medica. Acidum acetylosalicylatum: This substance, commercially known as aspirin, is indispensable at present. Æther ad narcosim: Our former official ether was not suitable for use as a general anæsthetic and foreign ether had therefore to be imported; the æther ad narcosim, if prepared according to the instructions of the new Pharmacopœia, will be very suitable for narcosis, and the expensive foreign ether will be replaced by a trustworthy home product. Æthylmorphinum hydrochloricum: This substance, known commercially as dionin, is extensively used in ophthalmology. Amylenum hydratum: This substance is a good hypnotic, especially in cases of alcoholic psychoses. Argentum proteinicum: This substance, commercially known as protargol, is indispensable in urological practice. Benzinum: This substance is indispensable in surgical practice. Chloroformum ad narcosim: It was necessary to bring into the Pharmacopœia a preparation which shall be purer than the one used at present and able to compete with the chloroform of foreign makers such as Pictet or Macfarlane. Chloroformum ad usum externum: As the anæsthetic chloroform is expensive a cheaper preparation for external use had to be introduced. Fluid extract of secale cornutum: Until now German preparations, such as Denzel's and Bombellon's, have been in use; the fluid extract made according to the instructions of the Hungarian Pharmacopœia is efficacious and not liable to decomposition. Liquor ferri albuminati and liquor ferri albuminati saccharati: There are so many untrustworthy commercial preparations of iron that it seemed necessary to describe good preparations which have a definite composition, containing 0·4 per cent. of iron. Pastilli nitroglycerini: Clinicians have requested that an official preparation of nitro-glycerine shall be kept in the pharmacies. Syrupus kalii sulphoguaiacolici: This substance is very much the same as sirolin prepared by Hoffman La Roche Co. at Basle in Switzerland; it has the recommendations of cheapness and good quality, as well as of being a home product. The other recent additions to the Hungarian Pharmacopœia need no special explanation.

March 26th.

DEATH OF A SUPER-CENTENARIAN.—Mr. Jeremiah Martin Simmonds, who on March 21st reached the remarkable age of 102, died two days later at his residence in Brighton, where he had lived for nearly 80 years. He was the oldest inhabitant of Brighton. Simmonds was a gardener and had been three times married. There are now two centenarians living in Brighton; they are Mrs. Norman and Mrs. Sinden. They occupy beds side by side in the workhouse infirmary.

Obituary.

WALTER BUTLER CHEADLE, M.A., M.D. CANTAB., F.R.C.P. LOND., F.R.G.S.,

CONSULTING PHYSICIAN TO ST. MARY'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

IN the death of Dr. Cheadle the medical profession has sustained a heavy loss, and there will be many who, hearing the sad news, will feel that they have parted with an old and valued friend. Dr. Cheadle passed away on Good Friday, March 25th, after a long and distressing illness, which was borne with steadfastness and heroic fortitude, and throughout which he showed those qualities that had gained for him the true admiration of his friends.

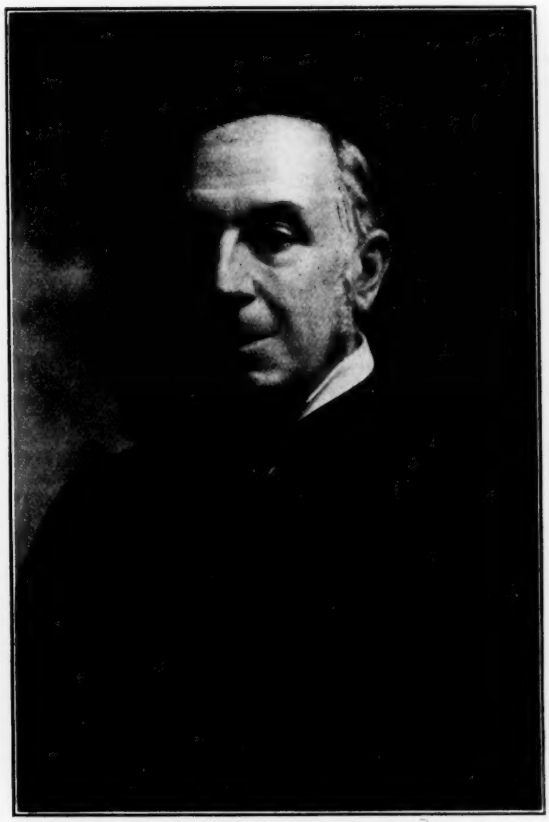
Walter Butler Cheadle was a Yorkshireman, being the son of the Rev. James Cheadle, Vicar of Bingley. He was born in October, 1836, and so has died in his seventy-fifth year. He was educated at Bingley Grammar School and went up to Cambridge as a scholar of Gonville and Caius College in 1855. A good athlete, and fond of cricket and all field sports, he excelled as an oarsman, and had it not been for a family bereavement would have rowed in the University boat-race in 1859. When talking over old times he often used to remark laughingly that it was fortunate for him that he had been compelled to resign his seat in the boat as he could not swim a stroke, and it was during that year's memorable boat-race that the Cambridge boat capsized. Leaving Cambridge, he pursued his medical studies at St. George's Hospital and obtained his M.B. degree in 1861. Between this date and 1865, when he proceeded to his doctorate, he had an experience such as falls to few medical men, an experience which marked him out as an explorer of great endurance and resource. On June 19th, 1862, he embarked in the s.s. *Anglo-Saxon* with the late Viscount Milton to explore a route across the continent of North America to British Columbia through British territory by one of the northerly passes in the Rocky Mountains. During the hazardous journey many adventures and great dangers were encountered in safety. These were recorded in a most fascinating book, "The North-West Passage by Land," written conjointly by the leader of the expedition and Dr. Cheadle. This book speedily ran through eight editions, and its interest was much enhanced by a ninth edition in 1901, which contains a postscript by Dr. Cheadle, touching upon the further explorations that had been made in the country, and the subsequent fate of the prominent men who had accompanied Viscount Milton and himself on their historic journey. Dr. Cheadle was always a modest and most retiring man, and it was a rare pleasure to induce him to show the numerous interesting relics in his possession. The travellers returned in the *China* on March 5th, 1864, to find themselves famous, but Dr. Cheadle laid aside his geographical laurels to settle down once more to hard medical study for his M.D. degree. In 1866 he was appointed assistant physician to St. Mary's Hospital upon the retirement of Sir James Alderson, and for nearly forty years he was in active service there. In these days it seems strange to record that he was dermatologist to the hospital until the election of Sir (then Mr.) Malcolm Morris. In 1869 he was appointed dean, and took an active part in founding entrance scholarships and advancing the status of the school. The same year saw his appointment as assistant physician to the Hospital for Sick Children, Great Ormond-street, where he achieved a far extended reputation for the treatment of children's diseases. During his 23 years of service at this hospital he used his influence repeatedly to add to the number of subscribers, and endowed the "Cheadle" cot in memory of his first wife. Dr. Cheadle was in active hospital life at a time when the "lady doctor" was greatly exercising the medical world, and in the teeth of strenuous opposition he upheld her cause, and gave lectures at the Medical School for Women at a time when it required some moral courage to do so. He took a practical interest in the training and position of nurses, and among other services readily granted to them he gave at one time a series of lectures on hygiene to the Nursing Association in Bloomsbury-square. Always public-spirited, he supported the athletic clubs attached to the medical school of St. Mary's Hospital, presented portraits of some of the most distinguished of its teachers and students to the library, and in 1898, shortly before his retirement from the staff, he gave £600 to endow a Cheadle prize and medal to be awarded to students of St. Mary's for proficiency in clinical medicine. His connexion with the Royal College of Physicians of London was a long one. He was elected a Fellow in 1870, examiner from 1885–88, Councillor and Censor in 1892, 1893, and 1898, and Lumleian lecturer in 1900.

When we recall the immense experience that Dr. Cheadle possessed we can readily understand the value of his writings, which were essentially terse and practical. In 1877 he made his first observations upon a mysterious disease in childhood characterised by pain and tenderness, hæmorrhages, and swelling of the gums, an account of which was afterwards published in THE LANCET; now it is generally known as infantile scurvy, the name he gave to this disease. In 1888 he delivered the classical Harveian lectures upon Rheumatism in Childhood. In 1889 his equally well-known book upon the artificial feeding of infants appeared. In 1896, on the last occasion of a meeting of the British Medical Association in London, he introduced the discussion on Acute Rheumatism in the Medical Section. In 1900 he devoted the Lumleian lectures to "Some Cirrhoses of the Liver," and lastly must be mentioned his "Occasional Lectures on the Practice of Medicine," a volume full of practical hints from a mature judgment.

As a teacher Dr. Cheadle was at his best when at the bedside with senior students and qualified men, and what especially impressed his pupils was his eminently sagacious conduct of his cases. He never fussed, but he did much in little details for his patients' comfort. For many years Dr. Cheadle had a large and responsible practice and inspired the greatest confidence in his patients. Circumstances rather than desire drove him largely into children's practice, for he himself had an expressed antipathy to the designation of specialist. His manner with children was particularly charming and they rewarded him with their complete confidence and affection. As a physician he possessed great insight, a finely balanced judgment, and much therapeutic skill. He was a man of imposing presence, and dignified, courteous, and reserved in manner. Absolutely straightforward and possessed of great kindliness of heart, his was a personality which must have remained in the memory of the most thoughtless of his students, for there was no finer representative of British medicine. Many heavy sorrows fell upon him in later years and as a result he withdrew more and more into himself and was seldom to be seen in public. He was twice married, first to Anne, second daughter of Mr. W. Murgatroyd of Bingley, secondly to Miss Emily Mansel Mansel, daughter of Mr. Robert Mansel of Rothbury, both of whom predeceased him. He leaves four sons by his first wife.

Dr. Cheadle's body was buried at Eastbourne on March 30th, in the presence of a number of his old friends.

Dr. D. B. Lees sends us the following tribute to his former colleague both at St. Mary's and at the Great Ormond-street Hospitals:—"Dr. Cheadle's contributions to the advancement of medical knowledge were mainly the results of his careful work and observation in a region then only partially explored and full of opportunity for the investigator—the study of the diseases of infancy and of early life made possible by the establishment of the Hospital for Sick Children, Great Ormond-street. In this field Jenner, Dickinson, Gee, and others had already worked, but valuable discoveries still were possible. Dr. Cheadle paid special attention to the question of the proper feeding of infants and to the morbid conditions produced by errors in this matter. He laid down the principles which should regulate the feeding of infants, and the practical application of these principles, in his lectures on the Artificial Feeding of Infants delivered at St. Mary's Hospital. To him is due also the earliest recognition of the occurrence of scurvy in young children as a clinical fact. His Harveian lectures on the various phases of rheumatism in early life were full of instructive facts and observations, and showed that the current conception of acute and subacute rheumatism as a form of arthritis occurring in adults, with occasional cardiac and other 'complications,' must be modified by the inclusion of very different symptoms and combinations of symptoms produced in early life. The reception of this truth was for a time only partial, and the 'peculiarities' of the disease in childhood were appended to descriptions drawn from adult patients. Even now it is not sufficiently realised that the



WALTER BUTLER CHEADLE, M.D., F.R.C.P., F.R.G.S.

true type of the disease is that which occurs in children, and that it is the adult that is 'peculiar.' When this view is universally accepted, it will be seen how valuable was the elucidation of the facts supplied by Dr. Cheadle. Dr. Cheadle did effective work in many capacities at St. Mary's Hospital—as lecturer on pharmacology, on pathology, on medicine, and on clinical medicine, and for four years as dean of the medical school. His memory will long be cherished as an upright, conscientious, practical and careful physician, whom everyone respected. The gold medal in clinical medicine which he founded has already produced much good work, and is the most valued distinction open to students of St. Mary's Hospital. Dr. Cheadle was of quiet and retiring disposition, but all who knew him were impressed by his sincerity, his straightforwardness, his unselfishness, and his kindness of heart. Of such a man and of such true original work his colleagues cannot but be proud."

Another former colleague writes:—"Dr. Cheadle's kindly nature and his genial manner endeared him to all who knew him, and to none more than to his colleagues at St. Mary's Hospital, with whom he at all times worked with unvarying loyalty and with never-flagging interest in the welfare of hospital and school. And none of those who knew him well could but be impressed with his high sense of honour and his devotion to duty. He regarded the regular and punctual performance of his hospital work as a call upon him never to be postponed or delayed; he never grudged giving ample time to it, and there was scarcely a day in which he did not visit his wards. And his patients one and all appreciated the time and attention he gave to them. He always brought to bear on them the same mental activity and clinical acumen that rendered his opinion second to that of no one. He was not given to theorise or to overstate what he found or inferred. What he did not understand he frankly stated, but he was very accurate and singularly correct in his diagnosis and in his interpretation of symptoms. Dr. Cheadle was too conscientious to rely always upon his own judgment alone; when doubt entered his mind he frequently invited the opinion of his colleagues, even of his juniors. Throughout his career he always kept himself well informed upon, and ready to adopt, new methods of treatment, or to avail himself of the use of newly introduced drugs. And he was most exact and discriminating in his directions for treatment and dieting of the individual patient. His teaching at the bedside was never formal, but it was always practical and given in a quiet, attractive manner which was especially grateful to those sensitive students who, under-estimating their own powers, shrink from the ordeal of too searching an examination. To the preparation of his short courses of lectures, given usually in the theatre, Dr. Cheadle always gave great pains and illustrated them with diagrams, experiments, specimens, and records of cases which made them invaluable. The large numbers who attended them showed how they were appreciated, and there must be many generations of students who find their practical value in their daily work, especially in the care and treatment of young infants. Dr. Cheadle was a loyal colleague and an unfailing friend, unassuming, unostentatious, generous, and honourable, with a high standard of duty and of conduct which he never failed himself to observe, and he leaves behind him affectionate memories among all who knew him at St. Mary's."

CANADA.

(FROM OUR OWN CORRESPONDENTS.)

The Conservation of Natural Wealth.

FOLLOWING in the footsteps of the United States and of some European countries, Canada intends to inaugurate measures at once to conserve her natural wealth. President Taft, speaking on the subject recently in the United States, expressed himself thus: "The problem is how to save and how to utilise, how to conserve and still to develop, for no sane person can contend that it is for the common good that nature's blessings are only for unborn generations." The Canadian Commission for conserving the natural resources of the country and for taking measures for the maintenance of public health met in the Carnegie Library, Ottawa, when it was decided that precautions should be taken to conserve the forests of Canada, and especially of British Columbia, and in every way to safeguard the national natural resources, under which heading are included fur-bearing animals and all game, as well as timber and water-sources. Dr. P. H. Bryce, chief medical inspector of the Department of the Interior, is one of the Commissioners.

Bill to Abolish Compulsory Vaccination in Ontario.

A Bill has been introduced into the Ontario Legislature to abolish compulsory vaccination. Municipal councils in Ontario now have the right to pass by-laws to enforce vaccination and not infrequently employ this power. The Bill is for the purpose of repealing the present Act and of leaving it to each person to decide for himself or herself whether he or she should be vaccinated.

High Rate of Infant Mortality in Ontario.

The death-rate of infants under one year of age in the Province of Ontario is very high. The annual report by the Registrar-General of births, marriages, and deaths in the Province of Ontario for the year ending Dec. 31st, 1907, shows that in Toronto during that year there were 6680 births, of which number no less than 1313 infants died before they reached the age of one year, giving a death-rate of 196 per 1000 births. In Ontario out of a total of 53,584 births in 1907, there occurred 8041 deaths of infants under one year of age, giving a death-rate of 150 per 1000 births. The corresponding rates for the same period in Chicago were 134 per 1000 births and in New York 171 per 1000 births. At a recent meeting of the Academy of Medicine of Toronto a resolution was moved in the Section of State Medicine by Dr. Goodchild requesting the Academy to appoint a special committee to consider and report upon the question of infant mortality. This resolution was carried and a committee has been appointed.

New Medical Building of McGill University.

Some of the buildings of McGill University were destroyed by fire about three years ago, and among these the building of the Medical Faculty. All have been rebuilt, with the exception of the medical building, which is in course of construction and which will be completed, it is expected, in the early part of the summer. The new medical building, which although lacking a wing is finished so far as the exterior is concerned, is a solid, somewhat picturesque stone edifice which faces and is in convenient proximity to the Royal Victoria Hospital. It is well arranged internally, containing large and airy lecture-rooms, library, and numerous class-rooms. The wing which will complete the structure is to be commenced at once. It is worthy of note that among the medical students of McGill University no fewer than 55 are English.

Toronto General Hospital.

Work will commence early this spring upon the erection of the new Toronto General Hospital, the ground having been partially prepared last fall. Recently the hospital has been in receipt of another handsome donation of $250,000 from Mr. J. C. Eaton, of Toronto. This is to be devoted to the surgical side of the hospital and is to commemorate the donor's father, Mr. Timothy Eaton. The site of the new hospital cost $608,615, and it is proposed to expend some $2,000,000 on the construction. Toronto is to give an additional $200,000. The plan of the hospital will be as follows: A main building fronting on College-street; an emergency building, the gift of private benefactors; the out-patient department, the gift of Mr. Cawthra Mulock, Toronto; building for private and semi-private patients; nurses' home with accommodation for 174 nurses; Burnside building, for accommodation of obstetrics; servants' quarters; central power-house; pathological building to be built and maintained by the University of Toronto, which is additional to a cash grant of $600,000. The public wards of the hospital will contain 449 beds; the private and "semi-private" wards of the hospital will be in a separate building with capacity for 98 beds. For the eye, ear, nose, and throat department there will be 36 beds; gynæcology, 39 beds; general surgery, 145 beds; medicine, 150 beds; emergency, 9 beds; obstetrics, 36 beds. This provides for 124 more beds in the public wards than in the present building and 22 more than in the present private wards.

The Milk-Supply of Ontario.

Last spring the Ontario Government appointed a Milk Commission to inquire into the milk-supply of the province and

to look into the milk-supply problem generally. At the present session of the Legislature, the commission has reported through its chairman, Dr. A. R. Pyne of Toronto. The report recommends that the general principles governing the production, care, and distribution of milk for human consumption should be fixed by the legislature; that in the interests of the public health and common decency more attention should be paid to the cleanliness of cow stables and of the healthfulness of cattle, and to this end the consuming municipalities should be empowered to make inspections at the source of supply and be urged to appoint veterinaries to act in conjunction with the local medical officer of health; that in cities of over 50,000 population no milk should be sold in shops except in bottles or other sealed packages; that cans, bottles, and other utensils used in handling milk should be used for no other purpose, and should be promptly rinsed by the consumer on being emptied. Toronto was found to have the worst milk-supply in Ontario and Ottawa the best. Toronto consumes 2336 eight-gallon cans of milk a day, which comes from about 900 farms within a radius not exceeding 40 miles. The report finds that "certified" milk is the ideal, but can probably never be attained except for the sick and infants; that pasteurised milk is an expedient but a good one. On the question of pasteurisation, the report makes special mention of the work being done in the Hospital for Sick Children, Toronto, where, through the generosity of Mr. John Ross Robertson, a pasteurisation plant was installed last summer. Here some 1200 children are fed upon pasteurised milk in the wards annually, and some 12,000 as out-patients. As the mortality of the hospital is about 1 in 3, it is being carefully watched as to what effect it will have in reducing that mortality.

March 21st.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—H. R. L. Allott (Section I.), Sheffield; S. Danziger (Sections I. and II.), Manchester; J. A. Laughton (Section I.), Charing Cross Hospital; C. P. A. de L. Pereira (Section II.), Birmingham: L. M. Potter (Section I.), Geneva and Royal Free Hospital; C. Pyper (Sections I. and II.), Leyden; E. Renouf (Sections I. and II.), Royal Free Hospital; R. Rowlands (Section II.), Glasgow and Westminster Hospital; and G. F. Wilson (Section II.), London Hospital.

Medicine.—K. Baylis (Sections I. and II.), Royal Free Hospital; M. Graves (Section I.), London Hospital; A. W. Hansell (Sections I. and II.), Leeds; A. Y. Massey (Section II.), Toronto and University College Hospital; C. P. A. de L. Pereira (Sections I. and II.), Birmingham; and G. F. Wilson (Section II.), London Hospital.

Forensic Medicine.—A. W. Hansell, Leeds.

Midwifery.—H. R. L. Allott, Sheffield; E. G. Brisco-Owen, Cardiff and Royal Free Hospital; and L. M. Potter, Geneva and Royal Free Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—S. Danziger, A. W. Hansell, C. P. A. de L. Pereira, and G. F. Wilson.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held in March the following candidates were successful:—

FINAL M.B. AND CH.B.

G. M. Benton, C. G. Brentnall, R. A. Jackson, N. T. K. Jordan (Second-class Honours), Cedric Pimblett, Alexander Porter, W. W. Stacey, and A. C. Turner.

Obstetrics.—Estelle I. E. Atkinson and T. E. Dickenson.

Medicine and Surgery.—G. T. Cregan.

Medicine.—W. B. Walmsley and William Wright.

Forensic Medicine and Toxicology.—A. E. Ainscow, Rupert Briercliffe, Caleb Davies, H. A. Dunkerley, E. R. Eatock, Gertrude H. Geller, P. S. Green, Harold Heathcote, R. C. Hutchinson, W. H. Parkinson, W. Hoyle Parkinson, Alexander Reid, J. B. Scott, W. A. Sneath, J. P. Stallard, James Walker, and Charlotte E. Warner.

SECOND M.B. AND CH.B.

Walter Barnes, W. L. Cox, W. C. C. Easton, R. B. Gorst, G. B. Horrocks, A. H. Macklin, and Harold Sheldon.

Physiology.—L. B. Baird, L. S. Daly, and Roderick MacGill.

THIRD M.B. AND CH.B.

General Pathology and Morbid Anatomy.—O. R. Allison, Benjamin Herald, A. H. Holmes (distinction), L. W. Howlett, W. H. Laslett, Newton Matthews, Frank Oppenheimer, Samuel Rawlinson, G. E. Sawdon, R. P. Stewart, and Gordon Whitehead.

THIRD B.D.S. EXAMINATION.

A. C. W. Hutchinson.

Physiology, Dental Anatomy, and Histology.—T. A. B. Corless.

DIPLOMA IN DENTISTRY (THIRD EXAMINATION).

L. W. Ward.

Physiology.—Wilfrid Jackson.

Dental Anatomy and Histology.—D. M. Lawrie.

DIPLOMA IN DENTISTRY (FINAL EXAMINATION).

W. G. Dykes and C. E. McNabb.

Dental Surgery and Dental Prosthetics.—F. B. Preston.

DIPLOMA IN PUBLIC HEALTH.

John Allen, William Bradley, David Fenton, W. J. Hoyten, R. A. Needham, and R. T. Turner.

DIPLOMA IN VETERINARY STATE MEDICINE.

W. W. Henderson, John Holroyd, A. B. Mattinson, and Brennan De Vine.

UNIVERSITY OF LEEDS.—At the second examination for the degrees of M.B., Ch.B. (Anatomy and Physiology), the following candidates were successful:—

H. Angel, J. H. Blackburn, J. Ferguson, G. W. L. Kirk, F. H. Kitson, G. P. Mellis, J. C. Metcalfe, M. Peto, S. Samuel, and H. W. Symons.

The following appointments to external examinerships were made in the Faculty of Medicine:—Anatomy: E. Fawcett, M.D., C.M. Physiology: W. D. Halliburton, M.D., F.R.C.P. Materia Medica and Pharmacy, Pharmacology and Therapeutics: A. R. Cushny, C.M., M.D. Pathology and Bacteriology: G. Sims Woodhead, M.A., M.D. Forensic Medicine: F. J. Smith, M.D., F.R.C.P. Public Health: H. T. Bulstrode, M.D. Medicine and Mental Diseases: L. E. Shaw, M.D., F.R.C.P. Surgery: L. A. Dunn, M.B., F.R.C.S. Obstetrics and Gynæcology: J. S. Fairburn, M.B., F.R.C.S.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A council meeting of this association was held on March 24th at the Holborn Restaurant, with Dr. F. G. Crookshank in the chair. Mr. D. A. Belilios, the honorary secretary, reported that at the last meeting of the Home Counties Branch of the Society of Medical Officers of Health, Dr. Crookshank (chairman of the association) had been nominated for the presidency of the society in succession to Dr. Cooper Pattin. It was unanimously agreed that steps be at once taken to support Dr. Crookshank at the election, which is to take place at 1, Upper Montague-street, Russell-square, on April 8th, at 5 P.M.

THE HOME TRAINING OF GIRLS.—The education committee of Brighton has approved of a scheme of an experimental character for the establishment of a school of home training for girls. A systematic course of instruction in domestic subjects is to be provided for girls immediately after leaving the elementary schools. The "municipal school for home training," as it is to be called, is to be open to 80 girls per annum; while selected groups of girls definitely intending to enter domestic service will be drafted into a model home for short periods of special practice in actual housework. The teachers are to be resident in the home, which will be managed by a committee of ladies.

MUNICIPAL MILK DEPÔTS.—The Lambeth borough council on March 17th showed itself more concerned about public health than its own public health committee. The committee presented a report by Dr. J. Priestley, the medical officer of health, containing some striking statistics of the saving of infant life effected by the municipal milk depôt, and followed it with a recommendation that the depôt be discontinued. At the council no one, not even the chairman of the committee, defended the proposal, and by a considerable majority it was decided to continue the depôt. Dr. Priestley stated that during four years 672,032 bottles of "humanised" milk had been supplied to 849 infants and children. The death-rate amongst those who were fed on the milk for six months or more was only at the rate of 22·7 per 1000, and the average on all the depôt-fed children only 69·5 per 1000, against a general infantile death-rate in the borough varying in the different wards from 110·9 to 199·7 per 1000. Making allowance for the comparatively small numbers dealt with, it was evident that there had been a large saving of life amongst the depôt-fed children and infants, and, in addition, the depôt had had a considerable educational influence. The council had allowed £200 yearly to meet the cost, and this sum had been somewhat exceeded in 1908 and 1909. The depôt could supply 400 to 500 children per day without proportionately greater expense. The cost compared favourably with that of the depôts at Woolwich and Battersea. The

public health committee brought forward its recommendation on the following grounds: that municipal milk depôts had not yet been legalised; that the systematic visiting of new-born infants since the Notification of Births Act came into operation made the depôts unnecessary; and that the number of applicants for the milk had not shown a progressive increase.

THE GRESHAM LECTURES.—Four lectures on elementary domestic hygiene will be delivered at the City of London School, Victoria Embankment, E.C., by Dr. F. M. Sandwith, the Gresham Professor of Physic, on Tuesday, Wednesday, Thursday, and Friday, beginning with April 5th. The lectures, which begin at 6 P.M. and are free to the public, embrace the subjects of elementary physiology, air and water, and the sanitary requirements of a home.

SAILORS' HOSPITAL AT VENICE.—Mr. de Zuccato, H.M. Consul at Venice, in his annual report just issued through the British Foreign Office, writes:—"The cosmopolitan hospital continues to give the utmost satisfaction to all classes of seafaring people, as this institution has been placed in a condition of high efficiency, in accordance with the best British methods, chiefly through the indefatigable efforts of Lady Layard, the honorary secretary. The hospital deserves to be visited and the committee to be encouraged in the charitable work they are carrying on. It is situate at Rio della Croce at the Giudecca, but there are steamers going there from St. Mark's every 20 minutes. Any small contributions English tourists might kindly give towards the comfort of those fellow-countrymen who are detained there by sickness would be gratefully received and acknowledged by Lady Layard, Ca' Capello, San Polo; or the Rev. A. L. Price, D.D., English Chaplain, Casa Hruska, Accademia, Venice."

THE ROYAL SANITARY INSTITUTE.—A sessional meeting of the institute will be held at 90, Buckingham Palace-road, London, at 5 P.M. on April 6th, when a paper will be read on "Sanitary Aspects of Floods and Measures to be taken to Prevent Epidemics arising therefrom" by Dr. A. J. Martin, Inspecteur Général des Services d'Hygiène de la Ville de Paris. Mr. A. Wynter Blyth will preside. On April 8th there will be a provincial sessional meeting at Plymouth when Colonel J. Lane Notter will preside. The proceedings will commence at 7.30 P.M. in the Guildhall by discussions on the "Removal of Town Filth" and "The Relative Value of Disinfectants in the Control of Diseases." The first will be opened by Mr. J. Paton, the borough engineer and surveyor of Plymouth, and the second by Mr. O. Hall, medical officer of health of Devonport. On the following day (Saturday) visits will be made to Messrs. James and Rosewell's Lead Works, and a luncheon will be held at the Globe Restaurant. Application for tickets and for further particulars should be made to Mr. F. M. Williams, Municipal Buildings, Plymouth, who is acting as local honorary secretary of the meeting; or to Mr. E. White Wallis, the secretary of the Royal Sanitary Institute, Buckingham Palace-road, London, S.W.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Easter Holidays.

ONLY three Parliamentary days have been devoted to the Easter holidays by the House of Commons this year, whilst the House of Lords is taking a week. These periods are much shorter than Parliament usually allows itself at this time of the year, but of course the whole Parliamentary situation is dominated by an unusual set of political events. The next few weeks, during which the question of the limitation of the veto of the House of Lords will be discussed, bid fair to be exciting and strenuous.

Death Certificates Charges Bill.

A Bill to provide "for the reduction in charges for death certificates in certain cases" has been introduced into the House of Commons by Mr. GILL. It has been read a first time. The measure has the support of Mr. A. HENDERSON, Mr. JOHN TAYLOR, Mr. PARKER, Mr. SHACKLETON, Mr. TYSON WILSON, and Mr. JAMES HASLAM.

Three Royal Commissions.

It is officially stated in a Parliamentary paper that the Royal Commission on Vivisection, appointed in 1906, is now engaged in the preparation of its report, but that, in view of points that have arisen, it has appeared desirable to call further evidence. In regard to the Royal Commission on Tuberculosis, the hope is expressed that the work will come to a close and the final report be presented in the autumn of this year. The Commission was appointed by Royal Warrant, dated August 31st, 1901, to inquire with respect to tuberculosis whether the disease in animals and man is the same; whether animals and man can be reciprocally infected with it; and under what conditions, if at all, the transmission of the disease from animals to man takes place. Three interim reports, with an appendix containing details of the experimental work, have already been issued. The Royal Commissioners on Sewage Disposal, appointed in May, 1898, are now investigating the question of the disposal of trade effluents (other than distillery effluents) when not mixed with sewage, and are continuing observations on the effect of discharging effluents of known composition into streams, with a view of reporting more fully on the question of standards and tests. They are also investigating the conditions under which green growths, such as *Ulva latissima*, are fostered in estuaries and how they may be prevented. The interim reports already presented by the Commissioners deal with (1) certain chemical and bacteriological investigations in relation to sewage disposal made under the direction of the Commission; (2) trade effluents and the setting up of rivers boards and a central authority for the purpose of settling disputes between manufacturers and local authorities and for the better protection of rivers and other waters; (3) the dissemination of diseases by means of contaminated shell-fish and other evils caused by the discharge of unpurified sewage and trade effluents into tidal waters; (4) the main question of what methods of sewage disposal may be properly adopted by local authorities; and (5) the disposal of distillery effluents.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 23RD.

Territorial Hospital Arrangements.

Viscount VALENTIA asked the Secretary of State for War, in view of the fact that on mobilisation some county associations were ordered to provide within a week a fully-equipped general hospital, the administrator of which was expected to arrange for having a call upon local tradesmen for hospital equipment, drugs, and surgical appliances, besides fittings for a building in which to store them, that the local tradesmen appeared unwilling to set aside the requisite stock owing to the inconvenience to them of locking up the capital required, and that the county associations were precluded by C. M. 221 from incurring any expenditure on purchase, storage, or other provision for equipment, whether he would consider the necessity for a special grant to be devoted to the above object.—Mr. HALDANE replied: The whole question is under consideration.

Anthrax Outbreaks Amongst Animals.

Mr. BARNSTON asked the Parliamentary Secretary to the Board of Agriculture whether, in view of the increase in the outbreaks of anthrax throughout the country, the Board would institute an inquiry as to the best means of exterminating the disease.—Sir EDWARD STRACHEY answered: The Board's veterinary officers are constantly engaged in making inquiry as to the causes of the spread of this disease, and as to the measures that can most usefully be taken to control it. The Board are also considering what steps can be taken to bring about a more uniform and efficient diagnosis. They do not think that a general inquiry on the subject at the present time would be likely to be attended with any beneficial results.

Chinese Pork in the Isle of Man.

Mr. FELL asked the President of the Local Government Board whether his attention had been called to the promise made by the authorities in the Isle of Man that the Chinese pork which was being cured in to bacon there, after being rejected at the ports of London and Liverpool, should not be offered for consumption in that island but should be exported at once; and whether he would take similar action and see that it was not landed in England for consumption.—Mr. BURNS answered: I have no information with regard to the first part of the question. As regards the latter part of the question I may refer the honourable gentleman to my previous replies on this subject.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND SONS, London.

The Iphigenia in Tauris of Euripides. Translated into English Rhyming Verse, with Explanatory Notes, by Gilbert Murray, LL.D., D.Litt. Price not stated.

ARNOLD, EDWARD, London.

A History of the London Hospital. By E. W. Morris. Price 6*s.* net.

BAILLIÈRE, TINDALL, AND COX, London.

The Nutrition of the Infant. By Ralph Vincent, M.D. Third edition. Price 10*s.* 6*d.* net.

BELL, GEORGE, AND SONS, London.

American Meat and its Influence upon the Public Health. By Albert Leffingwell, M.D. Price 3*s.* 6*d.* net.

CHURCHILL, J. AND A., London.

Lessons on Elementary Hygiene and Sanitation, with Special Reference to the Tropics. By W. T. Prout, C.M.G., M.B., C.M. Edin. Second edition, 1909. Price 2*s.* 6*d.* net.

CLAPP, DAVID, AND SON, Boston.

Publications of the Massachusetts General Hospital, Boston. Vol. II., October, 1909. Number 2. Selected Papers by the Staff. Price not stated.

CURRIE, JOHN, Edinburgh.
Hints on Prescription-writing. By James Burnet, M.A., M.D., M.R.C.P.E. Second Edition. Price 1s. net.
The Pocket Clinical Guide. By James Burnet, M.A., M.D., M.R.C.P.E. Price 1s. 6d. net.

FISCHER, GUSTAV, Jena.
Klinische Immunitätslehre und Serodiagnostik. Ein Lehrbuch für Aerzte. Von Dr. A. Wolff-Eisner. Price, paper, M.3.60; bound, M.4.50.
Dunkelfeldbeleuchtung und Ultramikroskopie in der Biologie und in der Medizin. Von N. Gaidukov. Price M.8.
Klinischer Beitrag zur Frage der Alkoholpsychosen. Von Dr. Wilhelm Stöcker. Price M.7.50.
Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Auflage. Neunte und zehnte Lieferung. Price M.4.50. (Preis des vollständigen Werkes: M.100; geb., M.117.50.)

HEADLEY BROTHERS, London.
The Prayer Quest: A Physiological Extension. By W. Winslow Hall, M.D. Price 2s. 6d. net.

HIRSCHWALD, AUGUST, Berlin.
Lehrbuch der Gynäkologischen Cytoskopie und Urethroskopie. Von Prof. Dr. W. Stoeckel. Zweite, völlig neubearbeitete Auflage der "Cystoskopie des Gynäkologen." Price M.16.

KARGER, S., Berlin.
Jahrbuch für Kinderheilkunde und Physische Erziehung. Unter Redaktion von O. Heubner und Th. Escherich. 71. der dritten Folge 21 Band, Heft 3. Ausgegeben am 1 Marz, 1910. Price not stated.

KEENER, GEORGE, AND CO., London.
The Prevention and Treatment of Abortion. By Frederick J. Taussig, A.B., M.D. Price 9s. net.

LAURIE, T. WERNER, London.
Spirit and Matter before the Bar of Modern Science. By Isaac W. Heysinger, M.A., M.D., Associate, Society for Psychical Research, London. Price 15s. net.

LEHMANN, J. F., München.
Lehmann's Medizin. Handatlanten. Band XXVI. Atlas und Grundriss der Zahnärztlichen Orthopädie. Von Zahnarzt Emil Herbst, D.D.S. in Bremen. Price M.14.

LEWIS, B., Vienna. (J. AND A. CHURCHILL, London; K. F. KOEHLER, Leipzig and Stuttgart; P. BLAKISTON'S SON AND CO., Philadelphia.)
Medical Vademecum in German and English. By B. Lewis. With Preface by Prof. Dr. A. Politzer. First edition. Price 15s. net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.
Living Anatomy and Pathology. The Diagnosis of Diseases in Early Life by the Roentgen Method. By Thomas Morgan Rotch, M.D. Price 25s. net.

LONGMANS, GREEN, AND CO., London.
The Simple Carbohydrates and the Glucosides. By E. Frankland Armstrong, D.Sc., Ph.D. Price 3s. 6d. net.

MASSON ET CIE, Paris.
La Période Post-Opératoire, Soins, Suites et Accidents. Par Salva Mercadé. Introduction par M. le Professeur Lannelongue. Price Fr.12.
Les Anaérobies. Par les Docteurs M. Jungano et A. Distaso. Price Fr.5.

MEDICAL TIMES (THE) PUBLISHING COMPANY, London.
Cancer and its Remedy. By Robert Bell, M.B., M.D., F.F.P.S., &c. Price 3s. 6d.

MURRAY, JOHN, London.
Health Progress and Administration in the West Indies. By Sir Rubert W. Boyce, M.B., F.R.S. Price 10s. 6d. net.

RIDER, WILLIAM, AND SON, LIMITED, London.
Nervousness. A Brief and Popular Review of the Moral Treatment of Disordered Nerves. By Alfred T. Schofield, M.D., M.R.C.S. Price 1s. net.
Nature's Help to Happiness or Ground Treatment. By John Warren Achorn, M.D. Price 1s. net.

SCHOETZ, RICHARD, Berlin.
Die Bestätigung der künstlichen Züchtung des Krebserregers, sowie weitere geschwulststatistische Mitteilungen über Familien-, Ehegatten-, und endemischen Krebs. Von Dr. Robert Behla. Price M.1.50.

SMITH, ELDER, AND CO., London.
Saint Bartholomew's Hospital Reports. Edited by H. Morley Fletcher, M.D., and W. McAdam Eccles, M.S., F.R.C.S. Vol. XLV. 1909.

SPRINGER, JULIUS, Berlin.
Die Forensische Blutuntersuchung. Ein Leitfaden für Studierende, beamtete und sachverständige Aerzte und für Kriminalisten. Von Dr. Otto Leers. Price, paper, M.6; bound, M.6.80.

STEINHEIL, G., Paris.
Hématolyse et Hématogenèse, Bacteriolyse et Bactériogenèse. Par le Dr. G. Froin. Price Fr.6.
Les Greffes Ovariennes, envisagées au point de vue de la pratique chirurgicale. Étude critique expérimentale et clinique. Par le Docteur Louis Sauvé. (Travail de la Clinique de M. le Professeur Quénu.) Price Fr.3.50.

URBAN UND SCHWARZENBERG, Berlin und Wien.
Atlas zur Mikroskopischen Diagnostik der Gynäkologie, nebst einer Anleitung und erläuterndem Text. Von Priv.-Doz. Dr. Rudolf Jolly. Price M.17.50.

VIGOT FRÈRES, Paris.
La Fonction du Sommeil. Physiologie, Psychologie, Pathologie. Par le Dr. Albert Salmon (de Florence). Price Fr. 4.

VOGEL, F. C. W., Leipzig.
Handbuch der Kinderheilkunde. Herausgegeben von Prof. Dr. M. Pfaundler und Prof. Dr. A. Schlossmann. Das Handbuch erscheint in vier Bänden. Band I., und Band II., 2, Auflage. Jeder Band kostet M.12.50 brosch.; M.15.-geb. (Der Kauf des ersten Bandes verpflichtet zur Abnahme des kompletten Werkes).

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Ideal Health, How to Attain it by Physical Culture. By "M.D." Second edition. Price 1s.

YEAR BOOK PRESS, CARE OF SWAN SONNENSCHEIN AND CO., LIMITED, London.
The Public Schools Year Book. The Official Book of Reference of the Headmasters' Conference. Twenty-first Year of Publication. 1910. Edited by H. F. W. Deane, M.A., F.S.A., and W. A. Evans, M.A. Price 3s. 6d. net.

YELLON, WILLIAMS, AND CO., LIMITED, The Celtic Press, London. (MECREDY, PERCY AND CO., LIMITED, Dublin.)
Health's Highway. By R. J. Mecredy. Price 3s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

EVANS, E. LAMING, M.D., B.C. Cantab., F.R.C.S. Eng., has been appointed Surgeon to the Surgical Aid Society, Salisbury-square, E.C.

GRAY, H. M. W., M.B., Ch.B. Aberd., F.R.C.S. Edin., has been appointed Senior Surgeon to the Royal Aberdeen Hospital for Sick Children.

LINDSAY, W. M., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Biggar District of the county of Lanark.

MARR, JAMESINA J., M.B., Ch.B. Edin., D.P.H., has been appointed Assistant Medical Officer under the Aberdeen School Board scheme of Medical Inspection.

MILNE, MEARNS A., M.B., Ch.B. Aberd., has been appointed Medical Officer to the Craig Parish Council.

POTTS, GEORGE, F.R.C.S. Edin., has been appointed Honorary Aural Surgeon to the Kent County Ophthalmic Hospital, Maidstone.

THOMPSON, HERBERT P., M.D. Edin., F.R.C.S. Edin., has been appointed Honorary Physician to Heatherdene Convalescent Home of the Sunderland Infirmary at Harrogate.

WIGHT, G., M.B., Ch.B. Edin., D.P.H., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Burntisland District of the county of Fife.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with apartments, board, and laundry.

BERMONDSEY MEDICAL MISSION, 44, Grange-road, Bermondsey, S.E.—Resident Medical Assistant (female). Salary £70 per annum, with board and lodging.

BIRKENHEAD UNION.—Junior Resident Assistant Medical Officer. Salary £100 per annum, with board, washing, and apartments.

BIRMINGHAM, CITY ASYLUM.—Junior Resident Medical Officer, unmarried. Salary £150 per annum, with board, &c.

BRECKNOCK COUNTY AND BOROUGH INFIRMARY.—Resident House Surgeon, unmarried. Salary £120 per annum, with apartments, board, attendance, &c.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

BRISTOL GENERAL HOSPITAL.—House Physician, Casualty House Surgeon, and Assistant House Physician for six months. Salary £60 each, with board, residence, &c.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Assistant Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary 40 guineas per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant.

CROYDON GENERAL HOSPITAL.—Honorary Radiographer.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £120 per annum, with board, lodging, and laundry.

EPSOM, LONDON COUNTY ASYLUM, Horton.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, and washing.

HAMPSTEAD GENERAL HOSPITAL.—House Physician and House Surgeon, each for six months. Salary at rate of £70 per annum, with board and residence.

HEREFORD COUNTY AND CITY ASYLUM, Burghill, Hereford.—Junior Assistant Medical Officer, unmarried. Salary £120 per annum, with board, apartments, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Casualty Officer. Salary £200 per annum, with lunch.

HULL, ROYAL INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board and lodging.

ILKESTON, BOROUGH OF.—School Medical Officer and Assistant Medical Officer of Health (female). Salary £250 per annum.

LONDON FEVER HOSPITAL, Islington, N.—Honorary Surgeon.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MIDDLESEX HOSPITAL, W.—Aural Surgeon. Also Third Assistant in Cancer Research Laboratories. Salary £150 per annum.

NEW HOSPITAL FOR WOMEN.—Surgeon (female).

NOTTINGHAM GENERAL HOSPITAL.—Honorary Physician.

PARISH OF ST. GILES INFIRMARY, Brunswick-square, Camberwell.—Assistant Medical Officer. Salary £120 per annum, with apartments, board, and washing.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician. Salaries of two former £75 per annum, and of two latter £40 per annum, with residence, board, and laundry.

REETH UNION AND RURAL DISTRICT COUNCIL, Yorkshire.—Medical Officer and Medical Officer of Health. Salary £95 per annum.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodgings, and washing.

ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.

ROYAL HOSPITAL, Richmond, Surrey.—Assistant House Surgeon. Salary £70 per annum, with board and apartments.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Pathologist. Salary 50 guineas per annum.

ROYAL INSTITUTE OF PUBLIC HEALTH.—Harben Demonstrator of Bacteriology and Comparative Pathology. Salary £250 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Bacteriologist. Salary at rate of £120 per annum, with lunch.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Resident House Surgeon, unmarried. Salary £100, with rooms, board, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Examination for Fifteen Commissions.

SALFORD ROYAL HOSPITAL.—House Surgeon for six months. Salary at rate of £60 per annum, with board and residence.

SEAMEN'S HOSPITAL SOCIETY, DREADNOUGHT HOSPITAL, Greenwich, S.E.—Assistant Physician.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHEFFIELD UNIVERSITY.—Demonstrator in Anatomy. Salary £150 per annum.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—House Physician. Salary £100 per annum, with apartments, board, and washing.

STOW-ON-THE-WOLD RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary £50 per annum.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board and laundry.

UNIVERSITY COLLEGE HOSPITAL.—Mechanical Assistant in Electro-Radiographic Department. Salary £78 per annum, with dinner and tea.

YORK COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

YORK DISPENSARY.—Two Resident Medical Officers, unmarried. Salary £130 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Ballycastle, in the county of Antrim; at Brackley, in the county of Northampton; at Milnathort, in the county of Kinross; at Salford, in the county of Lancaster; at Henley-on-Thames, in the county of Oxford; at Portishead, in the county of Somerset; and at Denbigh, in the county of Denbigh.

Births, Marriages, and Deaths.

BIRTHS.

MASTERMAN.—On March 5th, at Jerusalem, the wife of E. W. G. Masterman, M.D., F.R.C.S., Medical Superintendent of the English Mission Hospital, Jerusalem, of a son.

REINHARDT.—On March 24th, at South Eaton-place, Eaton-square, S.W., to Dr. and Mrs. Charles Reinhardt—a son (Patrick Hope).

WEBLEY.—On Feb. 19th, at Negritos, Peru, South America, the wife of Arthur S. Webley, L.R.C.P., M.R.C.S., of a son.

MARRIAGES.

BARK—OLIVER.—On March 10th, at St. Luke's, Walton, Liverpool, by the Rev. G. H. Casson, C.M.S., Uganda, Ernest Gilbert Bark, M.B., B.S. Lond., of Liscard, Cheshire, elder son of Ernest Bark, M.R.C.S., L.R.C.P., of Handsworth, Birmingham, to Emily, daughter of Mrs. Oliver, of Walton, and of the late William Oliver.

JAMIESON—GUNN.—At West Coates Parish Church, Edinburgh, on March 16th, 1910, by the Rev. Dr. Forrest, John Alexander Jamieson, M.B., Ch.B. Edin., to Christina Sinclair, elder daughter of James Gunn, Esq., 8, Henderland-road, Murrayfield, Edinburgh.

DEATHS.

BRODIE.—On March 12th, at West Ealing, from pneumonia, William Haig Brodie, M.D. Edin., M.R.C.P. Lond., F.R.C.S. Eng., D.P.H., aged 53 years.

CHEADLE.—On March 25th, at Portman-street, W., Walter Butler Cheadle, M.A., M.D., F.R.C.P., F.R.G.S., in his 75th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL PRACTICE IN BASUTOLAND: AN INTERESTING REPORT.

THE report on the Blue-book of Basutoland for the year 1908–09, which has just been presented to Parliament, contains a medical section of unusual interest. It appears that there has been a considerable increase in the smuggling of spirits into the territory, and also that a new form of intoxicant has been introduced from Bechuanaland during the last few years. The local name for this is "Qadi"; it is said to be made from ants' eggs. It has been found necessary to prohibit its use on the Government Reserve owing to its demoralising effect; it produces violent intoxication, and is said seriously to impair the intellects of those who use it habitually. Mr. Edward C. Long, the principal medical officer, comments on the remarkable increase in the work of his department in recent years. Prior to 1890 there were resident medical officers at Maseru and Leribe, a medical missionary subsidised by the Government at Mohales Hoek, and at Mafeteng a medical practitioner from Wepener attended the dispensary once a week. At all these stations free dispensaries for natives were maintained at Government expense. At first but few natives availed themselves of this privilege and the duties of the medical officers were light. In 1890 and 1891 resident medical officers were stationed at Mafeteng and Mohales Hoek respectively. From the latter station Quthing was visited once a fortnight. In 1896 a resident medical officer was placed there. The free dispensaries were inaugurated with the idea of combating witchcraft, which was much practised throughout the territory. The people at first regarded the innovation with suspicion and disfavour, but soon began to appreciate its advantag s, and the number of patients increased rapidly. As years passed it was found that the privilege of free treatment was being abused; it was therefore determined to impose a fee of 6*d.* for each attendance at the dispensary. The annual attendance was at this date about 20,000 and the revenue derived from the department *nil*. The following year the attendance fell to 9000, but has increased year by year, being at the present date over 36,000, the revenue being about £800. In the period about 1890 medical officers had their own private stock of drugs which they used for the few European residents. The system gave rise to a belief in the native mind that the Government drugs were of an inferior quality, and people frequently requested to be treated by the medical officer at his own house. To encourage such a prejudice would have defeated the object with which the dispensaries were inaugurated. The medical officers were therefore instructed to use Government drugs for private work and refund monthly the value of the drugs thus used. This action quickly abolished the prejudice against the Government dispensaries. In 1890 there was practically no accommodation for in-patients except two small rooms attached to the Maseru dispensary and a couple of native huts at Leribe. It was generally supposed that natives would be deterred by superstitious fears from submitting to hospital treatment, but a determined effort was made in the face of great difficulties and discouragement to disprove this and develop some sort of hospital work. It was felt that if the policy aimed at by the Government was to be realised it would be greatly assisted by such means. The actual accommodation at this time was of the meanest description. At Mafeteng for upwards of a year a disused stable was the only building available. There were no hospital attendants and no water-supply. If an operation was performed the dispensary had to be cleared for the purpose and the medical officer's writing-table of the morning was the operation-table of the afternoon. There were no beds and no bedding. Patients lay on mud floors in their own blankets, and their relatives or friends nursed them as they could. From year to year small sums were granted to improve existing buildings and to erect additional accommodation, which, however, continued to be of the most primitive nature. In 1897 a grant of £400 was made for building what were by courtesy called operation rooms at four stations. Some native hospital attendants, a few blankets, and surgical appliances were also provided, and the lack of accommodation eked out by a supply of tents. The applications for hospital treatment continued to increase, and as only surgical cases were admitted the buildings became, if possible, every year more and more unsuited for the purpose for which they were being used. In 1903 the first real advance towards providing suitable accommodation for in-patients was made by the erection at Maseru of a properly built and equipped hospital of 30 beds. An adequate staff, including two trained European nurses, was also provided. The wisdom of this policy was soon manifested; the institution rapidly became popular with the natives, and the beds were always filled. The same liberal policy was pursued in providing hospitals at Leribe in 1906, and last year at Mafeteng, while one now in course of erection at Mohales Hoek will be shortly ready for occupation. A small

hospital of eight beds has also been put up at Quthing. The accommodation at Maseru has been found insufficient, and the provision of 16 additional beds is contemplated. In 1908 an X rays installation was provided at Maseru and has proved of great value. The number of in-patients has risen from 280 in 1899 to 1070 last year. Some criticism has been levelled against the policy of providing first-class accommodation for natives, especially the provision of proper bedding and hospital clothing, and it has been asserted that some simpler accommodation would have met the needs of the case. Five years' experience at Maseru has shown that such criticism is not justifiable. The accommodation and equipment are only such as are necessary to carry out modern surgical methods. There is, moreover, the great educational advantage and civilising influence of compelling all who are admitted into hospital to submit to hospital cleanliness and hospital discipline. Although the equipment is of the best, the patients are not in any sense coddled. Strict discipline is maintained, and the diet is adapted to the social condition of the inmates. Prompt eviction follows any failure to conform to the rules of the institutions. The work of the medical department has grown in other directions. In former years the Government employees, who are all entitled to free medical attendance and medicine, were few in number and mostly unmarried men. At the present day there are over 200 Europeans in receipt of such free attendance. Questions relating to sanitation and public health, which were formerly ignored, now claim a good deal of time and attention. Basutoland is still without any ordinance bearing on sanitation and public health. The unqualified practice of medicine continues throughout the territory, and the annual sum paid by the people to those who impose on them would doubtless suffice to maintain two or three Government institutions. The general health of the territory has been good and there have been no epidemics of importance.

WANTED—TREATMENT FOR "BILIOUS HEADACHE."

"SUBSCRIBER" writes:—"At present I have three female patients, two married with children and one unmarried—the two married are about 38 years of age and the unmarried 43. They suffer weekly or fortnightly from severe headaches followed by bilious vomiting which lasts from one to two days. I have tried dieting, magnesia and grey powders, citrate of magnesia, citrate of caffeine, bismuth, soda, iron, and arsenic. In the intervals between the attacks the patients are perfectly well and all their organs seem sound. I should be grateful for suggestions for treatment."

CONTRIBUTIONS FROM THE WELLCOME RESEARCH LABORATORIES.

AMONGST the recent researches which form a valuable feature of the work of the Wellcome Laboratories we have received reports upon the following: "The Tests for Purity of Quinine Salts," by Frank Tutin; "The Configuration of Tropine and ψ-tropine and the resolution of Atropine," by Marmaduke Barrowcliff and Frank Tutin; "The Constituents of the Fruit of Ecballium Elaterium," by Frederick B. Power, Ph.D., and Charles W. Moore, Ph.D.; "Syntheses in the Epinephrine Series," by Frank Tutin, Frederic W. Caton, and Archie C. O. Hann; "Chemical Examination of Jalap," by Frederick B. Power, Ph.D., and Harold Rogerson, M.Sc.; and "The Chemical Examination of Elaterium and the Characters of Elaterin," by Frederick B. Power, Ph.D., and Charles W. Moore.

THE HOSPITAL GAZETTES.

THE *pièce de résistance* in the *Charing Cross Hospital Gazette* (March) is a paper on the Mind of a Child by Dr. David Forsyth. The doings of the hospital football team occupy a good proportion of the remaining pages.——As was to be expected, *Guy's Hospital Gazette* (March 19th) also devotes a fair amount of attention to games and includes accounts of the victorious semi-final and final ties for the Rugby Cup as well as that of the semi-final for the Surrey County Association Football Cup, which was won by Guy's against Townley Park after a hard game by 4 goals to 2. Mr. P. H. Ward writes from a mission station in Rhodesia an account of a 12 hours' night journey through the bush in the rainy season to the assistance of a parturient woman only to find a "B.B.A." when he arrived. It is an interesting sketch of frontier practice.——The *London Hospital Gazette* (March) is to be complimented upon the production of an ingenious piece of foolery in connexion with a widely-circulated "picture-puzzle" advertisement on a page apparently produced with the collusion of the advertisers.——In the magazine of the *London School of Medicine for Women* (February) Dr. F. Murray contributes some notes on the Practical Application of Swedish Medical Gymnastics and Massage to some Forms of Deformity and Disease, and an interesting series of topical articles reflects brightly the social life of the school and hospital.——To the *Middlesex Hospital Journal* (March) Mr. A. Pearce Gould contributes some Notes on the Work of Ambrose Parey, and Dr. A. O. English edits Harvey's account of the Autopsy of Old Parr, who, as many people know, is supposed to have lived until his 153rd year after habitually drinking sour milk and to have succumbed at last to the ill-considered hospitality of a nobleman.——*St. Bartholomew's Hospital Journal* (March) contains an account of the patron saint of the hospital, with a plate illustrating Marc D'Agrate's somewhat unpleasant statue of the saint carrying his own skin which stands in Milan Cathedral. "D. M. S." contributes an exciting yachting experience, and "A. B. P. S." a smart copy of verses.——*St. George's Hospital Gazette* (March) also prints verses in which "G. D. H. C." shows the unexpected metrical potentialities of medical nomenclature:—

> "With micro-organisms next you soon get quite familiar,
> Bacillus enteritidis, B. coli, and B.D.,
> The Diplococcus intracellularis meningitidis,
> The Treponema pallidum (a Protozoon, he!)
> Pathologists will tell you of the Endotheliomata,
> Of Lymphatism, Leukanæmia, Splenomegaly;
> Of Hypertrophic Pulmonary Osteo-arthropathy,
> And of Telangiectases, whatever they may be!"

It reads like an incantation.——*St. Mary's Hospital Gazette* (March) contains an extract from the Diary of a Ship's Doctor, following on a paper bearing the curious title of "The Sieve," by Dr. M. Handfield-Jones.——To *St. Thomas's Hospital Gazette* (March) Mr. G. H. Makins contributes some interesting Impressions of American Surgery, recently acquired at Rochester, U.S.A., Chicago, Cleveland, and Baltimore. Of Crile he says: "I saw him do a number of operations, amongst which I may mention as novelties two extensive extirpations of the breast and axillary glands, the wounds in which were left entirely open, in order to allow of direct exposure of the tissues to the action of the X rays. Dr. Crile spoke hopefully of this method, but said it was in the experimental stage."

BOVRIL PICTURES.

WE have received from Bovril, Limited, a signed artist's proof of their latest bonus picture, which is an excellent reproduction of an oil painting by W. Hatherell, R.I., entitled "The Vicar of Wakefield," which was exhibited in the Royal Academy in 1909. The size of the gravure is about 30 × 16½ inches and of the paper about 40 × 30 inches. Messrs. C. W. Faulkner and Co., Ltd., who are responsible for the gravure, are to be congratulated upon the excellence of the reproduction. We have also received three other good reproductions of pictures, two by Mr. Hatherell, of which one is entitled "The King's Derby (1909)" and the other "John Wesley," and one by Arthur Drummond entitled "This Little Piggie."

FORMULÆ, INDICATIONS AND DOSES.

Mr. E. Merck of Darmstadt and 16, Jewry-street, London, E.C., has issued a useful compilation of recent pharmaceutical preparations, and more particularly those to which special attention is given by this firm. The preparations are arranged in alphabetical order and reference to them is made serviceable by the inclusion of a therapeutic index.

Mac.—Our correspondent is advised to have nothing to do with such a publication. His friend should consult a medical man.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—D. P. Gabell, E. B. Dowsett, J. Howard Mummery) at 15, Cavendish-square, W.: at 8 P.M.

Paper:
Dr. R. Ackerley: Observations on the Condition of the Mouth in 1000 Consecutive Cases of Chronic Disease.

Casual Communications:
Mr. Herbert Tilley: Two Cases of Suppurating Dental Cysts Invading the Antrum.
Mr. W. de C. Prideaux: (1) A Case of Vertical Fracture through the Mandible and Canine Tooth; (2) A Case of Rupture of a Gastric Ulcer while in a Dental Chair.

THURSDAY.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan) at 15, Cavendish-square, W.: at 8.30 P.M.

Paper:
Dr. Niven: Summer Diarrhœa and Enteric Fever.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries: H. D. Rolleston, Albert Carless) at 15, Cavendish-square, W.: at 8.30 P.M.

Cases:
Dr. Finzi (with Mr. Gordon Watson): A Case of Epithelioma of the Lip treated with Radium (shown a year ago).
Dr. Finzi (with Dr. William Hill): Malignant Growth of Neck treated with Radium, with Recurrence in Mediastinum.
Mr. Charters Symonds: Rodent Ulcer treated by Radium (shown before).
Dr. Jacob: Acholuric Jaundice.
Dr. Hertz and Dr. F. S. Adams: Formation of Gallstones containing Typhoid Bacilli within 68 Days of the Onset of Typhoid Fever.
And other Cases.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Discussion on Vaccine Therapy (opened by Dr. G. Macdonald).

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Upper Montague-street, Russell-square, W.C.

FRIDAY.—5 P.M., Mr. C. S. Loch: The Majority Report of the Royal Commission on the Poor Law.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: External and Middle Ear.

FRIDAY.—3.45 P.M., Lecture:—Mr. C. Nourse: External and Middle Ear.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (9th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 30th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 24	30·51	S.W.	...	84	50	39	43	45	Foggy
,, 25	30·43	S.E.	...	89	55	42	43	45	Fine
,, 26	30·33	E.	...	80	47	37	39	41	Fine
,, 27	30·26	W.	...	74	55	35	38	39	Cloudy
,, 28	30·30	N.	...	85	53	33	36	39	Cloudy
,, 29	30·55	E.	...	87	51	38	39	40	Overcast
,, 30	30·45	W.	...	88	54	37	37	39	Hazy

Communications, Letters, &c., have been received from—

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